DRANETZ®

TM-112775

VOLUME 2 -- SERVICE MANUAL

preliminary

SERIES 656

DISTURBANCE WAVEFORM ANALYZER

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Because of possible shock or fire hazards, connection of this instrument should be performed in compliance with the National Electric Code (ANSI C1) or any other requirements, or both, which may be applicable to the user.

Installation, operation, and maintenance should only be performed by qualified personnel.

PRELIMINARY

PLEASE NOTE
New Street Address and Telephone #:
DRANETZ TECHNOLOGIES
Customer Service Department
4 Gladys Court
P.O. Box 4018
Edison, NJ 08818-4018
(201) 287-3680 FAX (201) 248-9240

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15 September 1987

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DRANETZ TECHNOLOGIES, INC.
1000 New Durham Rd., PO Box 4019
Edison, New Jersey 08818-4019

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PRELIMINARY

SECTION IV
THEORY OF OPERATION

This section contains the theory of operation for the individual boards in the Series 656.

PRELIMINARY

CRT CONTROL BOARD

(LM & Assy 112815-G1; Schem 112820-G1)

The CRT control board contains 64K x 8 of display RAM (U15, U16) and a scroll latch (U8 and half of U7). The rest of the circuitry is used for addressing the board and buffering the data signals. U1-U6 makes up the bus interface. U1 and U2 are the bidirectional data bus transceivers and the data bus is 16 bits wide.

U3 is the address comparator used for selecting the base address of the board. Jumper J1 is also used for selecting the base address. U4 and U5 are the address bus drivers. These are used with U25 and U21 and the R/W signal to access the display RAM or scroll latch.

U6 is a tristate driver used to buffer incoming signals (R/W, UPS, LDS, and AS). On the lower 9 data bits of the internal data bus, data is latched when any of the top 7 addresses of the CRT board is written to. Latched data is loaded during the vertical blank interval.

U24 with J2 configures the select signals for the display RAM. Control signals and dot patterns are then sent to the CRT timing board. The base pixel frequency for the controller is generated by a 20MHz crystal oscillator (Y1). The frequency is then divided down to the 10MHz dot clock. The 10MHz clock is used to synchronize all address and shipping operations. These operations are performed by two 8-bit synchronous counters, U12 and U13, and two data selectors, U19 and U20. These two counters address a pixel on any particular horizontal line. The resolution of one horizontal line is 512 pixels.

PRELIMINARY

CRT TIMING BOARD

(LM & Assy 112825-G1; Schem 112830-G1)

The CRT timing board controls the CRT timing. U3 is the video latch used to buffer and synchronize the video and brightness information. U5 is the video driver and U4 is the horizontal and vertical synchronization driver. The rising edge of the horizontal sync pulse is used to clock the two vertical counters (U9 and U10) on the main control board. The total vertical resolution that can be displayed is 240 lines.

U9 and U10 are reloadable 4-bit synchronous counters with a pre-load function used for scrolling. The vertical banking and sync signals are not generated directly from the address counter. U9, an 8-bit timer on the timing board, is used to count horizontal lines and to generate vertical timing. U9 is clocked by the rising edge of the horizontal blanking interval.

PRELIMINARY

FRONT PANEL INTERFACE BOARD

(LM & Assy 112875-G1; Schem 112880-G1)

The front panel interface board (FPIB) controls touch-screen scanning, decoding, and the initial monitoring setups of the SETUP switch. It also processes the serial information sent from the keyboard and contains 128 K-bytes of static RAM. U19-U22 and U25 make up the bus interface circuitry. U21 and U22 are the address bus drivers. U19 and U20 are bidirectional data bus transceivers U25 is an address comparator used to select the base address of the FPIB. Jumper J3 is used to select the boards' address location. U17 and U18 select the bank of RAM to be addressed by the system.

U1-U4, U30-U33, U35, and U36 make up the touch-screen circuitry. U3 and U4 are data latches enabled by U24. U33 is a 2-channel multiplexor used to read the X and Y coordinates of the touch-screen. U30 is an amplifier with a gain of "2" configured as an inverting amplifier. With the +5V input, an output of -10 volts is generated. This -10 volts is used as the voltage reference for the A/D converter. The output of U33 is amplified by Op-amp U31 and then passed to an 8-bit A/D converter (U35).

U32 is another 2-channel multiplexor used to adjust the gain and offset of the touch-screen circuitry. Adjustments are made through offset and gain pots R10-R13. Flip-flop U36 controls the timing of the process. The touch-screen incorporated in the unit is an analog-type screen. U27 is a DUART which accepts the serial information from the keyboard, processes it, and sends an 8-bit code to the data bus.

PRELIMINARY

FLOPPY DISK CONTROLLER BOARD

(LM & Assy 112845-G1; Schem 112850-G1)

Bus Interface

Data lines D0-D7 are buffered by the transceivers on U4. Additional input signals are buffered by U5. U1, U2, and U3 form the board selection circuitry. DTACK is generated by logic provided by U12, Q1, and Q2.

Operation

U7 is the floppy disk controller (FDC) chip. This chip, when properly programmed, provides an interface between the floppy disk drives and the CPU. Signals to and from the drives are buffered by U9 and U10. Timing for the FDC is provided by a 16MHz oscillator (Y1) which is divided down to 8MHz by a flip-flop on U13. This board provides a standard disk drive interface. The jumper selections on the drives provide the response and acknowledgments for its selected drive identity. The board supports four disk drives, however, only two are currently connected. Refer to the data sheets of the FDC for a more comprehensive description of its commands and capabilities.

PRELIMINARY

PRINTER BOARD

(LM & Assy 112865-G1; Schem 112870-G1)

The printer board controls the thermal printer, its accompanying take-up motor, and the audio transducer. It also routes the keyboard data signal to the CPU board via the motherboards. U1, U2, U5, U7, and U9 make up the bus interface. U1 and U2, along with J2, J5, and Q1 are the address comparator which selects the board. The address of the device is jumper-selectable. U5 and U7 are data bus drivers. U6 and U8 are high voltage, high current transistor arrays used to drive the thermal printer, printhead, and motor. U3, in conjunction with monostable multivibrator U12, provides the pulse to drive the paper take-up motor. Transistor Q2 provides the motor drive current. U11 and part of U10 provide the drive signal for the audio transducer (LS1).

Momentary switch S1 provides a paper feed signal while switch S2 is a cancel print signal. Line buffer/driver U9 is used to select a particular device (such as the printer, transducer, or take-up motor).

PRELIMINARY

CHANNEL INPUT BOARD

(LM & Assy 112905-G1; Schem 112910-G1)

The four channel input boards make up a four-channel, dual sampling speed, data acquisition system. The low frequency channels are sampled at a rate of 7200 samples per second to make the sampling synchronous with both 60 and 400Hz inputs. Since both the low and high frequency sampling rates are derived from the same clock, and the samples are interleaved in memory, the high frequency sampling rate is a multiple (256) of 7200--1.8432 MHz.

The input signals are applied to E1, E2, and E3. The low frequency path goes through resistor dividers R34 and R35 to obtain a 5 Vpk FSR signal at U22-3 and U22-5. Capacitors C42-44 limit the frequency response of the divider and prevent rapidly changing impulse edges from overloading the low frequency channel. Diodes CR11-14 clamp the inputs of U22 and protect it from overload input signals. The gain of differential amplifier U22 is set by the RNG (J) signal. A "1" corresponds to the high voltage range. When RNG (J) is a "0", U20-4 is high so that U23-8 and U23-1 are off while U23-9 and U23-16 are on. When RNG (J) is a "1", U20-4 is low and U23-8 and U23-1 are on, while U23-9 and U23-16 are off.

On high frequency, path capacitors C1 and C3, in parallel with C4, R1, and R2, serve to limit the rise time and the currents flowing in the divider with rapidly changing waveforms. Since the possible input signal can change 6 KV in 0.5 usec, the current in the 43pF input capacitors can be as high as 0.5A. Transformer T1, which acts as a three-winding balun, confines these high peak currents to the input circuit and prevents them from causing glitches in the digital circuits.

The outputs of U1 and U2 are converted to a single-ended signal in a conventional balanced-bridge differential amplifier built around U3. R5 is used to compensate for the imperfect CMRR of the capacitive dividers on the high voltage range. The output of U3, which has been scaled to be approximately 8 Vpk for FSR, goes several places: a high-pass filter, a zero-crossing detector, and a full-wave rectifier.

Sign determination and storage is done in comparator U11 and FF10. Sign determination must be done at the same time the signal in the channel is being converted by the flash ADC. U12, in conjunction with C31-33 and R25-27, form a single amplifier active high-pass butterworth filter with a 3dB point at approximately 2.2KHz.

U6, U13, and U14 form a full-wave rectifier. The filtered output is converted to a unipolar signal. U15-U17 and U25-U27 make up the threshold setting and detection circuitry. U25 and U26 are an 8-bit unipolar current output DAC and output amplifier. The DAC output is scaled to be 8 volts. This output goes to Pin 4 of comparator U15. The other input is from the full-wave rectifier when the voltage on U15-3 exceeds the voltage on U15-4. The comparator output, U15-12, goes to zero, indicating the presence of an impulse. The other half of U15 is used to detect the end of an impulse. Both high and low data information is passed to the ADC board to eventually form a digital word equal to the analog input.

PRELIMINARY

A/D CONVERTER BOARD

(LM & Assy 112915-G1; Schem 112920-G1)

The low-frequency differential inputs are labeled CH(X)H and CH(X)L, where X indicates the channel board I.D. These signals enter the board and go to differential multiplexor U8. The multiplexor output is filtered by R8, C13, R9, and C14 to remove the high frequency noise picked up on the backboard. U7 and its associated circuitry make up a conventional balanced-bridge differential amplifier.

The output of U7 is a single-ended signal which goes to sample-and-hold U5 operating in a non-inverting unity-gain mode. U5 is put in the "HOLD" state by the rising edge of W9D which also triggers ADC(U3). The "STATUS" signal from U3 goes positive when the ADC is triggered and remains positive until the end of the conversion. Conversion time is 25 usec. The FSR signal on the ADC is ±5V. The ADC generates its own reference.

R1 adjusts the full scale range and R2 adjusts the offset. The digital outputs of the ADC, DB0 (LSB) through DB11 (plus sign), are connected to the data bus through octal "D" flip-flops U1 and U2. The outputs of U1 and U2 are put on the data bus when Pin 1 goes to a "0" state. This happens only when nothing is being written to the input boards or when ADC and HF/LFD is "0".

The impulse inputs to the ADC board, CH01 and CH31, go to high-speed multiplexor U16. The 51 resistors, R10-7R13, dampen the motherboard ringing caused by switching kickbacks from the multiplexor. U15 is a high-speed decoder running the multiplexor at a 7.3728 MHz rate, allowing 136 nsec per channel. Signals S1, W2D, and W3D are reclocked by S0 in the high-speed quad "D" flip-flop (U14). The outputs are V1, V2D, and V3D. These reclocked outputs control the timing for the impulse channel. The output of the high-speed multiplexor goes to Pin 4 of the high-speed unity-gain buffer, U17. Resistors R21 and R22 in the power supply leads protect the buffer from a short circuit on the output.

Diodes CR2 and CR3 protect the flash ADC, which gives U17 a faster settling transient response with less ringing. R23, in conjunction with R25, compensates for the offset of U17. (The offset can cause gaps or jumps in the transfer characteristics around zero.) The full-scale voltage for the ADC is ±4 volts, which is the same as the referenced voltage. The reference voltage is generated by U18.

A conversion is initiated by the rising edge of U1 and the data is transferred to the ADC output registers by the falling edge of U1. ADC data is clocked into U24 by the next rising edge of U1. The output word also needs sign language, exponent information, range information, ADC overload information, and channel I.D.

Exponent and range information are put in their proper time slots to match up with the correct channel in U22. Range information is sequenced in U22. The outputs of U23 and U24 are connected to the data bus except when WD12 is a "0" (data is being written to the ADC or channel input boards) or when HF/LF is "0" (low frequency data is being put on the bus). ACT0 to ACT3 are AND-ORed together in U6 and U12 to generate DSAVE at U12-6. The timing sequence is done in U13 under control of W2D and W3D. Whenever an ACT X signal is low, the output of its OR gate will go low when the timing input of that gate goes low. This causes the output of U12 to go low, alerting memory to store the data on the bus.

PRELIMINARY

FRONT-END PROCESSOR BOARD

(LM & Assy 112925-G1; Schem 112930-G1)

Overview

The front-end processor board serves as the interface between the front-end (channel input and A/D boards) and the rest of the system. It generates all of the front-end timing signals and controls all of its information transfers.

The front-end processor board is made up of seven functional blocks:

1) CPU interface
2) Front-end interface
3) Local processor interface
4) Local processor system
5) 64K data buffer
6) Data buffer address control
7) Bus arbitration and timing generation

Each block is described in the sections below (you may also refer to schematic 112930-G1 for further details).

CPU Interface

The CPU interface is made up of IC's U1, U2, U4, U5, and U9. U9 enables an access from the CPU board when the CPU asserts the proper address. U1 and U2 serve to buffer the lower portion of the CPU's address bus used by the board. U4 and U5 are latched transceivers used to buffer CPU data to and from the board. The latch in the CPU-to-board direction is used by the CPU to store commands to the local processor. The latch in the board-to-CPU direction is used to clock in all data that the CPU reads.

Front-End Interface

The front-end interface is made up of U6 through U8. U6 and U7 are latched transceivers to buffer all reads and writes to the front-end. The latch in the board-to-front-end is not used (all written data is real-time), while the front-end-to-board latch clocks in all of the sample data from the front-end.

U8 buffers all of the timing signals sent to the front-end. HW/LW~ is asserted low every 256th clock cycle to alert the front-end to send a low frequency sample. S1 is the main 7.8MHz clock, while the "W" signals are divided versions of S1 used to control the selection and multiplexing of the low and high frequency data streams. WDIR is asserted low when the CPU or processor write to the impulse threshold latches on the channel input boards. DSAVE~ is asserted low by the front-end when a high frequency data sample should be saved.

Local Processor Interface

In the following paragraph, "board" refers to the front-end processor board, excluding the local processor system.

The local processor interface is made up of U20 through U26. U25 and U26 buffer the processor's address bus used by the board. U23 and U24 buffer the processor's reads and writes to the board. The latch in the processor-to-board direction is used by the processor to store commands to the CPU. The latch in the board-to-processor direction is used to clock in all data that the processor reads. U22 and U23 form a data port that the processor reads to obtain the value of the current low frequency data sample. The value of each new LF sample passed by the front-end is automatically written to this port by the bus arbitration logic. U20 is a status port the processor can read to determine if memory has overflowed and to find the current state of system timing.

Local Processor System

The local processor system is made up of U27-U32, U34, and U35. U27 through U31 are the processor and its private ROM and RAM. U32, U34, and U35 decode the processor's address bus to determine what device gets selected. The processor's DTACK~ line is normally low, providing no-wait-state operation, except when an access to the central bus is attempted. The bus arbitration logic will assert uPDTACK~ only after the bus has been freed for access by the processor.

64K Data Buffer

The 64K-byte data buffer, U10 and U11, serves as temporary storage space for incoming sample data. It can also be used for ordinary storage purposes by the CPU or the processor, Incoming sample data is automatically stored in this buffer by the bus arbitration logic. The data remains stored until the buffer fills or is reset by the CPU or processor. The buffer's contents can be read and any data can be transferred to the event memory board by the CPU.

Data Buffer Address Control

U12 through U17 make up a system which generates addresses for incoming data to be written to the sample data buffer. U16 and U17 form a 15-bit counter, with bit 16 used as an overflow bit. The 15 bits generate the address which selects a specific memory location in the buffer. Every time a sample is written to the data buffer, the counter increments by one to create the next address. U12 and U13 enable the counter's value to be asserted to the data buffer's address pins when a sample is being written. U14 and U15 enable the counter's value to be read by the CPU or processor.

Bus Arbitration and Timing Generation

Sheet 2 of the schematic shows the bus arbitration and timing logic. U18 and U19 are used to divide the 14.7MHz system clock into a number of slower clock signals. S1 (also indicated as I2 in some areas of the schematic) is the main timing signal on the board. It runs at 7.4 MHz. The other "S" outputs are used to provide timing to control data selection and multiplexing in the front-end.

U50 provides a clean, synchronous start to each bus arbitration decision by latching its input at the rising edge of S1. The HF/LF~ and DSAVE~ signals receive highest priority for bus control. HF/LF~ is asserted low every 256th S1 cycle. U50 provides a one-cycle delay so that the bus control logic sees the signal one cycle after the front-end sees it. Thus, a low frequency data sample will be waiting in the front-end data port when the bus controller sees the HF/LF~ assertion. The data sample value is then written to the data buffer and to the processor's low frequency data port on that cycle.

DSAVE~ is asserted low when a sample from a high frequency event is present in the front-end data port. A DSAVE~ will cause this data to be automatically written to the data buffer on that cycle. The front-end will never assert DSAVE~ when HF/LF~ is asserted.

MEMOVER will be asserted high whenever the 64K sample data buffer is full. Assertion of MEMOVER will prevent a write to the data buffer when HF/LF~ or DSAVE~ is asserted. If either a HF/LF~ or a DSAVE~ (with MEMOVER negated) is asserted, the ANALOG BUSY~ signal will hold off any attempted bus access by either the CPU or the processor.

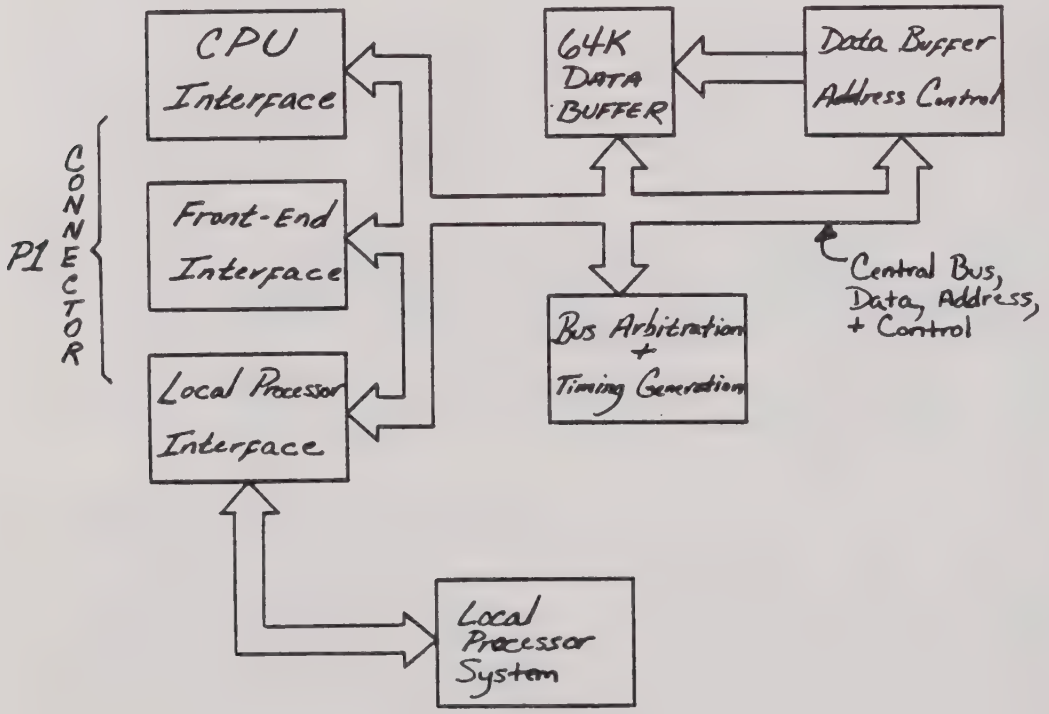
U44 is used to store bus access requests by the CPU and processor. When ANALOG BUSY~ is inactive, a processor bus request will receive priority over the CPU. When no other requests are asserted, the CPU will be allowed to have control of the bus.

The rest of the logic on the schematic is used to create the necessary enable signals for the source and destination of the data transfer for each bus cycle.

The following table describes what source/destination is enabled for addresses asserted by the CPU or the processor:

Address Pin	Value	Read Source	Write Destination
A16	1	(Locations in	64K data buffer)
A15 to A1	various	(Locations in	64K data buffer)
A16	0		
A15 to A3	don't care		
A2,A1	0,0	Up-to-board latch	Up-to-board latch (up only)
A2,A1	0,1	Data buffer address count	Processor LF data count
A2,A1	1,0	CPU-to-board latch	CPU-to-board latch (CPU only)
A2,A1	1,1	Reset the data buffer	Set front-end impulse threshold

Below is the block diagram for the front-panel interface board:



PRELIMINARY

TRANSDUCER MONITOR BOARD

(LM & Assy 112935-G1; Schem 112940-G1)

The transducer monitor board is made up of a system with 16 independent analog channels. There are 8 transducer channels for connection to either 0 to 5V or 4 to 20mA transducers; there are 8 system channels for monitoring internal system voltages. Each channel corresponds to a unique memory address location which is jumper selectable.

U1, U2, U3, U4, and U5 make up the bus interface circuitry. Address lines A1-A4 are used to select one of the 16 channels. A write operation to these lines initiates the A/D conversion.

U2 and U3 are address comparators. The comparators are used to select the base address of the board. U4 and U5 are bidirectional data bus receivers. Each input channel is separately fused by F1. Jumper J5 selects the voltage or current input mode. Each channel is filtered by inductors L3 and L4 and is attenuated by resistors R28-R31. The differential signal is then sent to analog switches U15 and U16. The signal is then conditioned by Op-amps U18-U20, processed by a 12-bit A/D converter (U12), and placed on the data bus by a READ operation to the same address which was written before it started the conversion. The entire process is completed in 1.2 mS following the start of the write cycle. The output reading specified above represents the channel input level at the time of the write operation.

PRELIMINARY

MEMORY BOARD

(LM & Assy 112945-G1; Schem 112950-G1)

The memory board is made up of 512K-bytes of battery backed-up dynamic RAM.

U1-U5 make up the bus interface circuitry. U1 and U2 are bidirectional data bus transceivers. U3, U4, and U5 make up the address bus drivers. U12 is used as an address comparator to select the base address of the board. The address is jumper selectable through J3.

U13 is a nonvolatile controller used to battery back-up the RAM.

U14 is a 3-to-8 line decoder used to select a particular bank of RAM.

PRELIMINARY

CPU BOARD

(LM & Assy 112955-G1; Schem 112960-G1)

The CPU board is a complete, stand-alone, 16-bit computer. It contains a bus interface, 64K-bytes of ROM, 64K-bytes of RAM, a dual asynchronous communications interface (DUART), and interrupt decode circuitry. The heart of the CPU board is a 68000 (U1) 16/32 bit microprocessor. The 68000 has a 16-bit internal register structure.

U2-6, U41, and U42 make up the bus interface. U2-4 are the address bus drivers. U5 and U6 are bidirectional data bus transceivers. U41 and U42 are line drivers that buffer the remaining system signals. U14 is an address comparator which decodes the ROM and RAM address space.

The ROM (U27, U28) resides at addresses $0000 to $FFFF; the RAM (U27, U28) resides at addresses $10000 to $FFFF. U14, U15, and sections of U20 and U21 are used to select signals for the upper and lower bytes of ROM and RAM. U12, U9, U18, and part of U16 and U19 are used for generating the DTACK handshake that the processor uses for data transfers. U12, in conjunction with J5, comprises a jumper-selectable DTACK delay for use with slower ROM devices. U7 and U8 are address comparators used to decode the base address of the DUART (U10).

U33-39, Q1-4, and U17 are used for level shifting the RS232 signals going in and out of the DUART (U10). Part of U19, U30, and U18 are used with the data bus transceivers for disabling the outputs of the transceivers whenever an on-board data transfer occurs. U24 is used as a DTACK acknowledge decoder for the DUART. U22, with part of U19, is used to generate a bus error signal for non-responding devices. U23 is an interrupt priority encoder used for interrupt signal conditioning for the CPU. Y1, part of U9, and U13 are used to generate the clock for the CPU and DUART. Part of U11 and U29 constitute the reset circuit for the 68000. J6, in conjunction with U17, U19, U20, and U21, define the RAM and RAM memory configuration as either 8K or 32K combinations.

PRELIMINARY

CONVERTER BOARD

(LM & Assy 112965-G1; Schem 112970-G1)

The converter board consists of the following functional sections:

1. Input filter
2. "Power On" switch
3. Voltage transient suppressor
4. AC/DC rectifier and filter used to run the power supply
5. Internal battery charging and fan powering circuits
6. Converter to step a 12V battery to 140 V dc
7. Battery and power line sense and protection circuit
8. 5V standby regulator
9. ±12V power to run board functions
10. Status leads for battery and converter

A high impedance filter is used on the ac input. This filter consists of chokes L1A and L1B, which increase the impedance when presented with high frequency disturbances. Capacitor C1 prevents a current path from returning when Switch S1 is opened after being closed. Voltage suppressor R1 clamps unwanted transients and voltage surges. The ac input voltage supplied to diode bridge BR1 is converted to a dc voltage. Thermistor R2 is used to limit the inrush current needed to charge capacitor C2 at power-on. C2 provides dc voltage to CR5. The cathode of CR5 provides the direct current used to power the unit's power supply.

Diode CR6 is used to provide uninterrupted power by way of the converter output. The converter output takes over power when the ac line voltage falls below 90 V rms. The sense circuitry consists of BR2, CR25, C4, R5, RN1, U1, R7-12, and CR11. Diode bridge BR2 full wave rectifies the ac input to the sense circuitry. C4 filters the voltage to a dc level. The output of U1-1 gives a division by 100. This signal is then compared to U1-7 below 90 V rms. R11 is adjusted so the output U1-7 swings negative. Above 90 V rms, U1-7 is high.

U3 and Q1 are used to provide the "Power Fail" signal which is sent to the CPU to be processed when an ac power loss is detected. The converter is turned on at 90 V rms to provide a voltage of 140 V dc. The 140 V dc is used to provide UPS capability when ac power is lost. The converter takes the 12V battery and steps up the voltage to 140 V dc by using a switching converter. The switching converter is pulse width modulated, allowing the output to be held constant as the battery voltage depletes. The converter consists of U5, U6, Q5-8, T1, RN2, CR12-15, L2, L3, and C22.

The converter is normally disabled until the logic circuitry indicates that a power loss condition has occurred. To charge the internal 12 volt battery pack and run the unit's dc fan, the +24V output from the switching power supply provides the necessary voltage. Q1 controls the battery charge voltage. U9 provides +5V regulation to maintain the unit's RAM memory in case of ac power loss.

The power necessary to operate the converter board is available once switch S1 is closed. Both +12BT and -12BT are generated by the battery to energize the power to the converter board. This prevents power-on delays. Protective circuits are provided to prevent converter operation when the battery is discharged or not connected to the system through J2.

PRELIMINARY

FRONT MOTHERBOARD

(LM & Assy 112885-G1; Schem 112890-G1)

The front motherboard provides the electrical path by which signals are transmitted between the CRT, floppy board, front panel interface, printer board, and rear motherboard. The power connection, CPU data lines, address lines, clock, and enable signals are bussed in a one-to-one configuration. These signals originate at the CPU board and are transmitted to the front motherboard via Jumper XA2.

The front motherboard contains no serviceable parts.

PRELIMINARY

REAR MOTHERBOARD

(LM & Assy 112895-G1; Schem 112900-G1)

The rear motherboard provides the electrical path by which signals are transmitted between the input channel boards, A/D board, FEP, CPU, front motherboard, memory board, and optional transducer monitor. Power to the system is first bussed through the rear motherboard through J2 and passed to the front motherboard. The signal lines of the back plane are terminated by a 330/470-ohm resistor network. Data, address, and control lines needed by the front motherboard are made through J1.

The rear motherboard has no serviceable parts.

PRELIMINARY

KEYBOARD

(LM & Assy 113050-G1, 113075-G1; Schem 113080-G1)

The Series 656 keyboard is a 64-key, full-travel, alphanumeric keyboard. Its design is based on the "QWERTY" keypad layout.

Microprocessor U2 continually scans the 8-by-8 keypad matrix. Multiplexor U1 is used to drive the matrix. When a key is pressed and recognized, the processor debounces the contact closure, seeks the key's value in a look-up table, and then outputs the ASCII code for that key through UART U8. The keyboard functions as an output device only. Crystal Y1 generates the 1.8432 MHz clock signals for the microprocessor and UART. U9 is a watchdog circuit that monitors the software execution and power to the keyboard. It also resets the processor if an out-of-control sequence occurs. Connection to the unit is made through the RJ11 jack on the front panel.

PRELIMINARY

SECTION V
MAINTENANCE AND CALIBRATION

SERVICING CAUTIONS AND WARNINGS

PRELIMINARY

WARNING

These servicing instructions are for use by qualified personnel only. To avoid electrical shock, DO NOT perform any servicing other than that contained in the operating instructions unless you are qualified to do so.

READ INSTRUCTIONS CAREFULLY

Because of potential shock or fire hazards, DO NOT perform any task for which you are not qualified. At the time of this writing, Underwriter's Laboratories, Inc. has determined a qualified person to be self-determined by that person who attempts to perform the specific task.

HANDLING PRECAUTIONS

PRELIMINARY

Handling Circuit Boards and Integrated Circuits

The integrated circuits used in the Series 656 are high-speed complementary Oxide Semiconductors (HCMOS). These circuits are susceptible to damage by static electricity, however, they can easily and safely be handled if you take some simple precautions.

The predominant source of potential damage is the build-up of a static charge on the skin or clothing of the person handling the devices or boards. This normally is the voltage difference between this person and earth ground or a static charge of the unit itself. This charge can readily be several thousand volts. Low humidity increases static charges substantially.

Grounding

It's essential that a separate ground wire be used to connect the frame of the unit to a reliable ground within the working area. Metallic benches should be reliably grounded. A soldering iron (if used) should be grounded (3-wire type). A piece of conductive material which is also connected to ground should be available on which circuit boards or integrated circuits can be placed. Conductive rubber or foam is recommended, but a piece of uninsulated metallic plate is also suitable.

Clothing

Nylon, wool, and polyester clothing can cause a considerable build-up of static electricity. It is recommended that a cotton smock be worn if available. Also, do not work in an area with a carpeted floor. Shoes and rugs can be especially damaging to circuits.

Board Handling

Before touching circuit boards, discharge your body first of static electricity by touching the grounding surface to which the board is connected, such as the unit frame if in the unit or other conductive material. Never grasp or hold the board by its connector. Touch the frame of the unit first with your other hand before inserting cards. When laying a board down, always touch the conductive surface with your hand first, then set the board on the conductive material.

Never lay a board on your clothing or a static-prone material. Replacement boards are, if required, supplied in a conductive container with a shorting block across its finger contacts. Always keep these materials for safe handling and shipping of spare or replacement boards. If these materials are not available, wrap the boards containing HCMOS ICs with household aluminum foil for storage or shipping. DO NOT insert an unprotected board into an ordinary plastic bag or loose-pack it with foam chips.

Handling HCMOS Integrated Circuits

Discharge your body of electrical static before touching an integrated circuit (IC). Remove all power sources to the unit before removing or inserting any ICs. To remove an IC from a socket, first place the board on the conductive surface, then hold the board down with one hand, allowing at least one finger to touch the conductive surface or power supply tracks. Now, remove the IC with the other hand. An IC extractor tool or a small prying tool, placed between the socket and IC body to lift it, may be required. Once removed, place the IC down with its pins in contact with the grounded surface. To pick up an IC, first discharge yourself by contacting the conductive surface with your hand, then pick up the IC by holding as many pins as possible.

Never lay an HCMOS IC on your clothing or a static-prone material. Replacement ICs, if required, are shipped in a conductive carrier or conductive foam material. Always keep these for safe handling or storing. If a suitable carrier is not available, wrap the IC in household aluminum foil. Do not place unprotected HCMOS ICs in an ordinary plastic bag or other static-prone material. If handing an HCMOS IC to another person, make body contact first.

If an HCMOS IC accidentally falls on a static-prone surface, first locate the ground pin of the IC. Touch this pin first, then pick up the IC. If an HCMOS IC has been mishandled, re-test it before using.

PRELIMINARY

GENERAL PRECAUTIONS

Observe the following general precautions:

1) DO NOT attempt to remove any board without first disconnecting all power and signal sources and turning the unit off.

2) Use caution when handling boards out of the unit.

3) Disconnect all external power sources when removing or inserting any boards or ICs.

4) DO NOT operate the Series 656 with any of its circuit cards, boards, or ICs removed unless specifically instructed to do so in this manual.

5) For continued fire hazard protection, replace fuses only with the recommended types and ratings.

6) The fuses provided are intended for fire hazard protection. If a fuse is open, it normally would be caused by a component failure, in which case servicing by qualified personnel is required.

PRELIMINARY

BATTERY CAUTIONS

1) Batteries contained within the unit are sealed rechargeable nickel-cadmium types. Do not attempt to replace individual batteries or substitute other battery types. Replace batteries only with a complete recommended battery pack.

2) DO NOT intentionally short circuit the battery pack. The batteries are capable of providing hazardous output currents if short circuited.

3) The Series 656 is equipped with an internal battery charger circuit. DO NOT attempt to charge the batteries with an external charger since improper charging could cause battery explosion, producing personal injury and/or damage.

4) The batteries have a safety pressure vent to prevent excessive gas build-up. A defective charger, excessive temperature, excessive discharge rate, or a defective cell can cause venting to occur. Visually inspect the battery pack for corrosion which indicates that venting has occurred. If corrosion is excessive, the battery pack may require replacement.

PRELIMINARY

CONVERTER BOARD CALIBRATION

Required Equipment

Harrison 6269A ... 40V @ 50 Amps

Capacitor ..... 0.1 Farads, 16V

DVM ..... Fluke 8810A

Variable Auto Transformer

AC Voltage Monitor

Converter Concepts Power Supply VT75-491-10XX
with distributed load on outputs as follows:
+ 5V @ 5A
+12V @ 1A
-12V @ 1A

The 24V output is used for providing the required voltage to the converter board.

Procedure

1. Perform a static test on the converter board.

   Take an ohmmeter measurement from each L-bracket heat sink to the shield. A reading of approximately 1.5M is acceptable. This shield should indicate that FET's Q5, Q7, and Q8 are not shorted to ground. If the FETs are damaged, replace them before proceeding.

2. Set the Harrison power source to 12V. Connect the source to J2 with the current limit set low.

3. Connect ac power to the converter board. Turn the power switch to "ON".

4. Monitor the dc voltage at cathode of CR6 with the variable auto transformer set for 115 V rms output. The dc level should read approximately 140 V dc.

5. Set the variable auto transformer to 90 V rms to set the converter takeover point. Adjust R11 while monitoring U1-7. The output of U1-7 will go to approximately -12V when R11 is properly adjusted.

6. Turn up the current limit knob of the Harrison power supply slightly.

7. While monitoring the anode of CR6, set the converter output to 140 V dc by adjusting R22 while shorting J1 pins 1 and 2 with a momentary push button switch.

8. Adjust the Harrison power source to 14.0 V. Adjust R41 until DS2 lights up.

9. Turn up the current limit knob of the Harrison power source to full current. This allows sufficient current to run the converter when ac power is removed. Remove the ac power connection. LED DS1 should be on when the converter runs. The voltage measured at the cathode of CR6 will be approximately 140 V with battery operation.

10. Re-connect ac power.

11. Adjust for low battery condition. Set Harrison power source to 9.5 V dc. Adjust R72 so U7-1 goes "Lo" with the Harrison power source adjusted to 9.5 V and below.

12. With DVM, check J3 pins 31ABC for a 5.0 output.

13. With DVM, check J4 for 24.0 V to run the fan.

TRANSDUCER BOARD CALIBRATION

PRELIMINARY

Purpose

1. Connection
2. Adjust U18 and U19 offset
3. Adjust the "+" and "-" input attenuators
4. Adjust U20 common mode
5. Adjust J3 system input attenuator
6. Adjust input gain
7. Adjust A/D to zero
8. Adjust A/D to full scale
9. Check calibration of volts and 4-20 mA

Required Equipment

Transducer Monitor test fixture

100V dc power supply (+12V, -12V, +5V) with connecting cable

DC Digital Voltmeter (DVM): 0.0001 to 50.00 V dc resolution 0.1% accuracy with probes

Jumper clip and wire

Series 656 test frame or instrument with Version 1.3 or later software

Transducer: 0.0 to 10.0 V dc and 0.0 to 40.0 mA signal generator fixture

One-to-one extender board

Procedure

1. Connection. Connect the transducer test fixture to the power supply and turn the power off. Install the Transducer Board into the the edge connector. Connect the dip clip cable to U6, observing polarity. Connect the blue connector to pin 1 of J3. Make certain the Transducer Board is set for voltage (J5 A-H, jumpered 2 to 3) and that W3 is not jumpered. Remove the input connector from the Transducer Board and connect the input connector from the test fixture.

2. Adjusting U18 and U19 offset. Set the switch on the fixture to the center "DESELECT" position. Set the fixture switch to "PROBE" and monitor U18-6 with the probe. Turn fixture power on. Connect the dip clip to U13 to short U13-7 and U13-10 to U13-5 (GND). Connect a jumper wire from R8 analog ground to R16 connection to U19-2. Adjust R11 to null U18-6 to 0 ±0.1mV. Remove the jumper from R16 and connect to R13 connection to U18-2. Monitor U19-6 and adjust R12 for 0 ±0.1mV.

3. Adjusting the "+" and "-" input attenuators. Remove the dip clip and any jumpers. Set the fixture to:

   DIGISWITCH = 0 (CH1) VDC SWITCH = 50VDC
   SELECT SWITCH = INPUT CH SWITCH = 10 (CH1)
   SIGNAL SWITCH = CMV

   Set the meter switch to signal and adjust the fixture potentiometer for 50.0 ±0.05V dc. Set the meter switch to probe and monitor U18-3 with the probe. Adjust R33A for 2.5 ±0.003V dc. Repeat by setting the channel switch from 10 through 80 and the corresponding digiswitch from 0 through 7, and adjust R33 A through H to adjust U18-3 for each channel. Move the probe to U19-3 and adjust R30 A through H for 2.5 ±0.003V dc for each channel setting fixture as above.

4. Adjusting U20 common mode. With the fixture set as in step 3, channel 1, monitor U20-7 with the probe. Adjust R19 for 0.0 ±0.001 mV.

5. Adjusting system input attenuator. Set the fixture to:

   SELECT SWITCH = SYSTEM DIGISWITCH = 3
   VDC SWITCH = 10VDC OTHER SWITCHES = DON'T CARE

   Set the meter switch to "SIG" and trim the DVM reading to 10.0 ±0.01V dc. Set the meter switch to "PROBE" and with connection to J3, monitor U19-3 with the probe. Adjust R26 for 0.25 ±0.001V dc at U19-3.

6. Adjusting input gain. Set the fixture to:

   SELECT SWITCH = INPUT INPUT SWITCH = NORM
   DIGISWITCH = 0 VDC SWITCH = NORM
   CH SWITCH = 10

   Set meter switch to "SIG" and trim the digital voltmeter to 5.0 ±0.01V dc. Set meter switch to "PROBE" and monitor U20-7 with probe. Adjust R15 for reading of 5.0 ±0.01V dc at U20-7.

7. Adjusting A/D to zero. Turn the fixture power off and jumper W3 on the transducer. Install the Transducer Board in the 656 test frame on a one-to-one extender. Connect the signal fixture to the Transducer Board. Set the fixture to:

   V/A = VOLTS
   CH = 1
   V LEVEL = 1.22mV

   Monitor the voltage between the black and ground terminal with the DVM. Trim to 1.22 mV if needed. Turn the Series 656 on and boot the SYSTEM disk. Press any key for the "MAIN MENU". Make selection 5, DISK OPERATIONS. Install the transducer test setup disk into the left-hand drive. Make selection 1, GET INFORMATION, and then return to the MAIN MENU. Make selection 6, OTHER FUNCTIONS, and then selection 5, 656 SYSTEM TOOLS. Type "DRAN", press ENTER, and then select "(1) REAL-TIME SCANNING DATA" to display the current count readings. Adjust R6 on transducer for a CH1 transition reading of 0000 to 0001. Rotate the "CH" switch from 1 through 8 and verify that each channel reads 0000 ±0008.

8. Adjusting A/D to full scale. With the transducer set as in step 7, set fixture V level to 9.996V dc and trim if needed. Adjust R5 for 4095 ±1 on CH1. Rotate the CH1 switch from 1 through 8 and verify that each channel reads 4095 ±0028.

9. Checking voltage at 1/2 FS. Set the transducer as in step 7 and set the fixture V level to 4.998V dc. Rotate the channel switch from 1 through 8 and verify that each channel reads 2047 ±0018.

10. Checking amps at 1/2 FS. Move transducer J5 A-H between jumpers 1 and 2. Set the signal fixture to:

    V/A = AMPS
    V LEVEL = VAR
    CH = 1

    Monitor the signal with the DVM and adjust for 20 mA (0.0202V dc). Rotate the CH switch from 1 through 8 and verify that each channel reads 2047 ±0018. (Voltage may have to be adjusted for each channel due to variations in fuse resistance.)

11. Turn the unit off and replace J5 A-H between jumpers 2 and 3 to set the board for voltage.

12. Reinstall the tested Transducer Board into the Series 656 Mainframe.

INPUT AND A/D BOARD CALIBRATIONS

PRELIMINARY

Purpose

1. Bringing up and checking Input Board for proper signals
2. Adjust low level zero offset response
3. Adjust high frequency full wave rectifier phase equalization
4. Adjust signal delay of high frequency input
5. Adjust zero offset response
6. Adjust low frequency input common mode rejection ratio
7. Check low frequency input gains
8. Adjust high frequency input common mode rejection ratio
9. Adjust high frequency input gains
10. Bring up and adjust A/D Board for offset and gains
11. Check low frequency A/D conversion time

Required Equipment

Test Motherboard fixture with clipper

Test A/D Standard Board

System Control Timing/DAC Test Board

Function generator

Oscilloscope capable of displaying 2uS pulses

AC/DC digital voltmeter with 0.001V resolution below 10 volts

6XX high level 60Hz and impulse calibration rack

Extender Board

Procedure

1. Bringing up and Checking Input Board for Proper Signals. Turn fixture power off. Install the System Control Board, Standard A/D Board, and Input Board under test into the extender in their proper slots. Install a 14.7456MHz XTAL into the Control Board.

2. Set program jumper 2 on the Control Board for CH0. Set crosstalk switches (CH0-H, CH0-L, and CH0-I) to "N". Set all other LF (low frequency) switches to "CT" and jumper H-L crosstalk inputs to "Gnd". Set all other HF (high frequency) switches to crosstalk and the input switch to "Gnd".

3. Low Frequency Preset. Turn the power on. Make sure the frame ground is connected to the circuit ground to minimize noise. Set the switch on the Control Board to HF/LF=LF, R/W=0, DAC/RANGE=0, CH0=1, and XD0=0. Return R/W=1 to read LF DAC.

4. Connect a ±5V pk, 100Hz sine wave signal between U22-5 and ground. Ground U22-3. Use an external reference to synchronize the scope to the signal. Connect the scope probe to the LF clip on the Test Board. Verify LF DAC output of approximately ±8V pk and also that the samples do not have any oscillations. Remove the signal and short the inputs. Check that the DC offset at U22-1 and U22-7 is less than 4 mV total difference between each output.

5. (Optional Pretest Check) Set the switch on the Control Board to HF/LF=LF, R/W=0, DAC/RANGE=0, CH0=1, and XD0=1. Return R/W=1 to read LF DAC. Repeat step 4, however, this time reduce the signal to ±0.5V pk for ±8V pk output on the LV (low voltage) range.

6. Return to the HV (high voltage) range by setting the switches as in step 3. Increase the signal level and observe that diodes start clipping U22-5 at approximately 8.8 to 10.0V pk input signal. Reverse the signal and ground leads at U22-5 and U22-3 and verify U22-3 clips as above.

7. (Optional Pretest Check) Check the low level output on the HV range by connecting the scope probe LF clip on the Test Board with a 0.01 bypass to reduce HF noise. Reduce the signal level for a 0.120V pk-to-pk DAC output. Check the quality of the output as in step 4.

8. Impulse Pretest. Set the Input Board to the LV range by setting R/W=0, DAC/RANGE=0, CH0=1, XD0=1, and HF/LF=HF. Set DAC/RANGE=1 and XD0 through XD7 equal to 0 to set the minimum threshold. Return R/W=1 to read HF DAC. Set HF/G=G.

9. (Optional Pretest Check) Make sure the Input Board is set to the low range with no jumpers to disconnect the 0.033uF capacitors from the impulse channel. Connect a ±8V pk 1 KHz sine wave signal between U1-3 and ground. Connect U2-3 to ground. Verify 7.5V pk full wave rectification at U5-6 with the minimum very close to ground.

10. Increase the signal and verify that clamp diodes clip U1-3 at approximately 8.8 to 9.5V pk. Reverse the leads at U1-3 and U2-3 and verify U2-3 clamps.

11. Lower the impulse channel sine wave signal to approximately ±1V pk and expand the vertical scope to verify no oscillations at sign comparator U10-12 zero crossings.

12. Increase the signal level and verify U10-2 range comparator switches with 2.42 ±0.2V pk-to-pk input from both directions and that no oscillations occur with slow level changes. Verify that the signal at U8-5 is unity gain with levels below 2V pk and that it gets divided in half when U5-6 goes to approximately 2 ±0.4V pk.

13. Increase the impulse signal to ±8V pk at 10KHz. Verify that the high pass full rectified signal at U14-6 is approximately 7.27V pk with minimum close to ground. Decrease the frequency to 400 Hz and verify that the output of U14-6 is approximately 3.7V pk. Decrease the frequency to 60 Hz at ±8V pk input and verify that the output of U14-6 is very close to 0V pk. Set the signal generator to a square wave at 60 Hz. Verify a typical response of 12V pk of 260 uS, 4V pk of 1000 uS, and 1.25V pk of 1.4 mS.

14. (Optional Pretest Check) With a ±8V pk and 10KHz sine wave signal, set HF/G=G. Clip the scope probe to the Test Board HF clip. Verify that R47 can be adjusted for a ±3.57V pk signal.

15. Threshold Check. Set the Control Board as in step 8 for minimum threshold (XD0 through XD7 = 0) on the LV range.

16. Starting with 0, increase the impulse sine wave signal at 100KHz and observe the level that U16-6 goes low (should be approximately ±0.000 to ±0.060V pk, 0.5% full scale). Set R/W=0, DAC/RANGE=1, and CH0=1 to set the threshold range. Observe U15-4 and set each bit, XD0 through XD7, to 1. Verify that each bit increases threshold level up to 7.3V dc with all 1s. Verify that U16-6=1 below ±7.3V pk input at the maximum threshold. Set DB7=0 and reduce the signal to 4.4V pk-to-pk. Verify that U16-6=0 at any point between 3.7 to 4.7V pk-to-pk.

17. With the unit set for full scale threshold and the input ±7.3V pk at 2.2 KHz sine wave, verify that U17-4 goes low for 100 uS ±10uS.

18. Adjusting A/D Conversion Board. Turn the power off. Set crosstalk switches on the Connector Board to "CT" and the impulse input to "Gnd". Install A/D under test into the A/D slot on an extender. Connect the "DSAVE" connector to the input slot. Turn power on.

19. Observe U20-17 with the dc digital voltmeter and adjust R16 for 4 ±0.003V dc.

20. Set the Control Board to HF/LF=0, R/W=0, DAC/RANGE=0, CH0=0, and XD0=0. Jumper H to L to channel G on the test frame. Set the circuit G switch on the frame to channel G. All inputs are now grounded. Return R/W=1 to read LF DAC.

21. Observe U3-28 with the scope and verify that the conversion time (U28=1) is less than 25.5 uS. (Replace U3 if out of tolerance.)

22. Observe U3-16 through U3-26 on the scope and adjust R2 until all are below 2.5V. With R/W=1, clip the scope probe to the LF clip on the Test Board. The dc level should be less than 0.004V dc (if not, the Test Board offset needs adjustment).

23. Connect "L" terminal of frame input to channel G. Connect the dc output of the frame to "H". Adjust the amplitude for 5.000 V dc ±0.002 with the digital voltmeter. Adjust R1 until U3-16 remains high. Check that U3-16 through U3-26 equals 1. Input a 60 Hz ±5V pk sine wave signal between the H-L terminals. Connect the scope to the LF clip on the Test Board and verify a ±8V pk sampled signal. Repeat step 22 to verify 0 ±1LSB.

24. Remove the signal. Observe U20-13 with the scope and adjust R23 until U20-13 remains low. Verify U20-2 through 5 and 10 through 13 are low. If you are unable to zero all outputs, go to step 25 and adjust R23 until the HF output is less than 0.016V dc (since the digital signal at the data bus is the only point that must be at 0).

25. Remove the A/D Board from the extender. Set test switches to HF/LF=HF and R/W=1. Read the HF DAC. Set HF/G=G. Clip the scope to the HF clip on the Test Board. The dc level should be less than 0.016 V dc. (If it's not, the offset on the Test Board needs adjustment. You must then remove U20 and replace it with a plastic terminator, adjust the Test Board HF zero potentiometer to null the scope dc level, replace U20, and repeat step 25.)

26. Connect the switch on the Connector Board to "CT IMP IN" and input a ±4V pk at 10KHz sine wave signal. Clip the scope to the HF clip. The scope should display a ±4V pk half wave rectified waveform just below clipping.

27. Input Board Calibration. Make the connections as in steps 1, 2, and 8 to read the HF DAC on the LV range. Make sure that the A/D and Test Boards are adjusted before attempting the following adjustments. (Be sure the 2 jumpers at K1 are disconnected to keep the impulse channel on the LV range or the signal generator will load down.)

28. Adjusting the Offset. Input a 900mV pk at 70Hz sine wave from the synthesizer generator. Set the switches as in step 27 to read the high frequency DAC on the LV range. Set HF/G=G. Connect the scope probe to the high frequency clip on the Control Board. Also connect the synthesizer output to null the input on the Control Board. Bypass the probe at scope with approximately 0.1uF. Set the scope to 10mV per division vertical, 2mS horizontal, external trigger, null sine wave, with potentiometer on the Control Board. Adjust R57 to null consecutive zero crossings. Remove the null input and verify that the zero crossings do not look distorted. (Readjust R57 if distortion is noticeable.)

29. Adjusting the High Frequency Rectifier Phase. Connect the clipper circuit to the scope and supply ±12V dc to the clipper and bypass the scope with an approximate 0.1uF capacitor. Connect the probe to the HF clip. Set the switch to HF/G=HF and read the high frequency DAC on the LV range. Verify the signal clips at approximately 0.4 to 1.0V dc. Input a 4.0V pk at 201670 Hz sine wave from the synthesis generator. Set the scope vertical to 50 mV per division and the horizontal to approximately 1 mS. Adjust the levels of consecutive zero crossings for equal offsets using C29. (C61 may help if adjustment is off.)

30. Adjusting Sign Crossing. With the unit set as in step 29, adjust C61 to remove the curved edges from consecutive zero crossings.

31. Adjusting Low Frequency Common Mode Rejection Ratio. Remove the signal generator from the circuit and connect the calibration rack ac to E1 and E2 on the Input Board. Set the calibration ac panel to:

    GND POL = -
    NORM/CMRR = CMRR
    VOLTS = ON

    Set the Control Board to read LF DAC on the high voltage range as in step 3. Clip the scope probe to the LF clip on the Test Board. Synchronize the scope off the probe. Input a 300V ac at 60Hz sine wave signal and adjust R53 for minimum signal on the scope. Set the calibration rack for 300V ac at 3KHz. Adjust C44 for minimum signal on the scope. Repeat again at 60Hz and 3KHz. The amplitude at 60Hz should be less than 0.020V pk-to-pk. The amplitude at 3KHz should be less than 0.04V pk-to-pk.

32. Checking Low Frequency Gain. With the unit set as in step 31, set the calibration rack switch to "NORM". Increase the amplitude until the signal clips. The amplitude should be 579.26 ±5V ac. Turn off the signal. Set the LV by setting the Test Board. Switches are the same as in step 3, except XD0=1. Increase the amplitude until the signal clips. The amplitude should be 57.92 ±1V ac. Reverse the ground polarity on the calibration rack. The amplitude should remain within ±0.5V ac.

33. Add jumpers at K1 location. Jumper 2 to 4 and 6 to 8. This connects C3 and C5 to hard wire the impulse channel to the HV range.

34. Adjusting the HF LF Common Mode Rejection Ratio. Set up the Test Board to read the high frequency DAC on the HV range as in step 8, except that XD0=0. Observe U5-6 with the scope. With a common mode sine wave signal of 500V ac at 10KHz from the calibration rack, adjust R5 for the minimum signal. The amplitude should be less than 0.005V pk-to-pk.

35. Adjusting the HF HF Common Mode Rejection Ratio. Connect E1 and E2 to the half sine pulse output on the calibration rack. Set up the Test Board to read the HF DAC on the HV range as in step 8 with XD0=0. Set the impulse output on, calibration rack to common mode rejection ratio, and synchronous scope on external. Input 1500V pk at 2uS pulses and adjust C12 for minimum signal. The amplitude should be less than 0.010V pk at the HF DAC. (Readjust R5 if necessary.)

36. Adjust the high frequency HV gain. Connect E1 and E2 to the ac output. Set the ac panel to:

    GND POL. = 1
    NORM/CMRR = NORM
    VOLTS = ON

    Set up the Test Board to read high frequency DAC on the HV range as in step 8, except XDO=0. Input a 543V ac at 20KHz sine wave signal. Connect the scope probe to the HF clip on the Control Board. Adjust R47 for $\pm$0.55 $\pm$0.02V pk.

PRELIMINARY

SECTION VI
REPLACEABLE PARTS LIST

The following pages contain the individual LMs for each section in the Series 656. Only the first page of each LM is numbered.

LM Number	Page
LM 112775-G1	6-2
LM 112810-G1	6-7
LM 112815-G1	6-9
LM 112825-G1	6-15
LM 112831-G1	6-19
LM 112832-G1	6-21
LM 112834-G1	6-23
LM 112875-G1	6-25
LM 112911-G[]	6-34
LM 112845-G1	6-37
LM 112840-G[]	6-43
LM 112839-G1	6-45
LM 112836-G1	6-47
LM 112855-G1	6-49
LM 112865-G1	6-53
LM 112892-G1	6-58
LM 112905-G1	6-60
LM 112915-G1	6-74
LM 112925-G1	6-83
LM 112935-G1	6-89
LM 112945-G1	6-102
LM 112955-G1	6-109
LM 112964-G1	6-118
LM 112965-G1	6-120
LM 112885-G1	6-134
LM 112895-G1	6-137
LM 113050-G1	6-140
LM 113075-G1	6-143
LM 112824-G1	6-149
LM 113093-G1	6-151
LM 113070-G1	6-153

PRELIMINARY

SEP 15

LM 112775-G1

(Page 1 of 5)

* IN PART ITEM: SEE SPECIFICATION CONTROL DRAWING — COL. DENOTES VENDOR — SOURCE CONTROL OR

LIST OF MATERIALS

DRAWING NUMBER LM112775-G1 F

QTY REQD G1	QTY REQD G2	QTY REQD G3	QTY REQD G4	U OF M	ITEM NO.	SIZE	CODE IDENT.	PART OR IDENTIFYING NO.	NOMENCLATURE OR DESCRIPTION	REF. DESIG.	
REF				-				112775-G1	DISTURBANCE WAVEFORM ANALYZER		
REF				-				113098	INTERCONNECT WIRING DIA.		
REF				-				112776	ORGANIZATION DIAGRAM		
REF				-				TM112775-G1	TECH MANUAL		
1				1				113066-G1	INPUT IDENTIFICATION DECAL		
REF				-				113067-G1	ARTWORK		
1				1				112780-G1	FRONT PANEL BEZEL INCL MRK		
1				1				112779-G1	BATTERY COVER		
1				1				112778-G1	BATTERY SUPPORT BRACKET		
1				1				113206-G2	BATTERY PACK		
1				1				LM112810-G1	CRT MAIN FRAME	A1	
1				1				LM112875-G1	PCB ASSY, FRONT PANEL INTERFACE	A2	
1				1	EITHER/OR			LM112911-G1	FLOPPY CONTROL MAIN FRAME	A6	
								LM112911-G2	FLOPPY CONTROL MAIN FRAME	A6	

DRANETZ TECHNOLOGIES, INC.
EDISON NEW JERSEY U S A

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SIZE A | CODE IDENT. NO. 23207 | LM 112775-G1

ASSEMBLY SHEET SIZE

SHEET 2 OF 5

U OF M CODE | 1 PIECE 5 SET | 6 PAIR 32 FEET | 52 U. S. FLUID OZ. 54 U. S. LIQUID QT | 55 U. S. GAL. 68 POUND, AVDP

OGALVE PRESS LANCASTER N Y

* IN PART [illegible]COL. DENOTES VENDOR ITEM: SEE [illegible]URCE CONTROL OR SPECIFICATION CONTROL DRAWING

LIST OF MATERIALS

LM DRAWING [illegible]MBER 112775-G1 F

QTY REQD G1	QTY REQD G2	QTY REQD G3	QTY REQD G4	U OF M	ITEM NO.	SIZE	CODE IDENT.	PART OR IDENTIFYING NO.	NOMENCLATURE OR DESCRIPTION	REF. DESIG.	
1				32			3M	4032	FOAM TAPE, DBL. SIDE 5/16 x 1 L		
2				1				112922-G1	NYLON SQ. BLOCK 5/16 SQ x 1 L		
1				1			ROBINSON NUGENT	RNE-96CS-S-TG	CONN. EUROCARD 96-PIN	J1A	
1				1				100968	MFG. DECAL		
1				1				111640	FCC DECAL		
1				1				LM112855-G1	PRINTER MAIN FRAME	A13	
1				1				LM112905-G1	PCB ASSY, CHANNEL INPUT	A14	
3				1				LM112905-G1	CHANNEL INPUT	A16	
1				1				LM112915-G1	ANALOG/DIGITAL CONV	A17	
–				–				——	SAME AS A16	A18	
–				–				—	SAME AS A16	A20	
1				1				LM112925-G1	PCB ASSY, FRONT END PROCESSOR	A21	
A/R				1				LM112935-G1	PCB ASSY, XDUCER MONITOR	A23	OPTION
1				1				LM112945-G1	PCB ASSY, MEMORY	A24	

DRANETZ TECHNOLOGIES, INC.
EDISON NEW JERSEY U S A

PREPARED BY DATE
CHECKED BY DATE

SIZE A | CODE IDENT. NO. 23207 | LM 112775-G1
ASSEMBLY SHEET SIZE | SHEET [illegible]F 5

U OF M CODE | [illegible]CE 6 PAIR 52 U. S. FLUID OZ. 55 U. S. GAL.
[illegible]t 32 FEET 54 U. S. LIQUID QT. 68 POUND, AVDP

OGILVIE PRESS LANCASTER N Y

* IN PART ITEM: SEE SPECIFICATION CONTROL DRAWING COL. DENOTES VENDOR SOURCE CONTROL OR

LIST OF MATERIALS

DRAWING NUMBER LM 112775-G1 F

QTY REQD G1	QTY REQD G2	QTY REQD G3	QTY REQD G4	U OF M	ITEM NO.	SIZE	CODE IDENT.	PART OR IDENTIFYING NO.	NOMENCLATURE OR DESCRIPTION	REF. DESIG.
1				1				LM112955-G1	PCB ASSY, CPU	A25
1				1				LM112964-G1	BATTERY CONVERTER	A26
1				1				LM112885-G1	FRONT MOTHER	A27
1				1				LM112895-G1	REAR MOTHER	A28
1				1				LM113050-G1	KEYBOARD MAINFRAME	A29
A/R				1				113097-G1	FILLER PANEL	
1				1				110895-G2	FAN	
1				1				110896-G1	FAN SCREEN	
1				1				110893-G1	POWER CORD, SHIELDED	
1				1				113090-G1	REAR PANEL INCL MRK	
1				1				113087-G1	REAR PANEL INCL MRK	
1				1				113492-G2	FLOPPY DISK DECAL — PART OF	
REF				1				113493-G2	ARTWORK	
1				1				112796-G1	POWER SUPPLY MOD.	
1				1				LM112777-G1	COMPAC CASE ASSY	
1				1				110888-G1	THERMAL PAPER	

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SIZE A | CODE IDENT. NO. 23207 | LM 112775-G1

ASSEMBLY SHEET SIZE

SHEET 4 OF 5

U OF M CODE | 1 PIECE 5 SET | 6 PAIR 32 FEET | 52 U. S. FLUID OZ. 54 U. S. LIQUID QT | 55 U. S. GAL. 68 POUND, AVDP

OGILVIE PRESS LANCASTER N Y

* IN PART ' COL. DENOTES VENDOR ITEM: SEE URCE CONTROL OR SPECIFICATION CONTROL DRAWING

LIST OF MATERIALS

LM DRAWING IBER 112775-G1 F

QTY REQD G1	QTY REQD G2	QTY REQD G3	QTY REQD G4	U OF M	ITEM NO.	SIZE	CODE IDENT.	PART OR IDENTIFYING NO.	NOMENCLATURE OR DESCRIPTION	REF. DESIG.
1				1			ALL-STATES	BT-14N	BEADED CABLE TIE	
1				1				113255	KEY RING	
1				1				103160	IDENTIFICATION DECAL BLANK	
31				1				113212-G3	SCREW, METRIC	
2				1				LM113093-G1	FOOT ASSY	
1				1				112993	HARNESS REAR MO. BD. / PWR. SUPPLY	
13				1			AMP	2-34541-1	SPADE LUG	
1				1			H.H. SMITH	1415-8	SOLDER LUG	
1				1			AMP	1-640426-8	CLOSED END HOUSING W/LOCK	P2
1				1			AMP	640441-2	CONN MTA 2 POS	P1
1				1			PANDUIT	PLTIM	CABLE TIE	
1				1				113227-G1	3 1/2" DSDD FLOPPY DISKETTE	
2				1				112923-G1	SPACER STRIP	
1				1				SEE PROGRAM LISTING 105924	3 1/2" DSDD SYSTEM DISKETTE	

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SIZE A | CODE IDENT. NO. 23207 | LM 112775-G1

ASSEMBLY SHEET SIZE | SHEET 5 OF 5

U OF M | 1 E | 6 PAIR | 52 U. S. FLUID OZ. | 55 U. S. GAL.
CODE | 5 Sh | 32 FEET | 54 U. S. LIQUID QT. | 68 POUND, AVDP

OGLEVE PRESS LANCASTER N Y

PRELIMINARY

SEP 15

LM 112810-G1

(Page 1 of 2)

* IN PART COL. DENOTES VENDOR ITEM: SEE SOURCE CONTROL OR SPECIFICATION CONTROL DRAWING

LIST OF MATERIALS

DRAWING NUMBER LM 112810-G1 C

QTY REQD G1	QTY REQD G2	QTY REQD G3	QTY REQD G4	U OF M	ITEM NO.	SIZE	CODE IDENT.	PART OR IDENTIFYING NO.	NOMENCLATURE OR DESCRIPTION	REF. DESIG.
REF				-				112810-G1	MAIN FRAME, CRT	
1				1				113228-G1	CATHODE RAY TUBE	
1				1				LM112815-G1	P.CKT BD CRT CONTROL	A1A1
1				1				LM112825-G1	P.CKT BD VIDEO TIMING	A1A2
1				1				112811-G1	CRT MOUNT BRACKET	
1				1				112811-G2	CRT MOUNT BRACKET	
2				1				112812-G1	CRT BRACKET	
1				1				112813-G1	UPPER CRT BRACKET	
1				1				112814-G1	LOWER CRT BRACKET	
1				1				LM112831-G1	CONTROL/VIDEO TIMING INTERFACE SIGNAL CABLE ASSY	
1				1				LM112832-G1	CRT/VIDEO TIMING INTERFACE SIGNAL CABLE ASSY	
1				1				113230-G1	TOUCHSCREEN	
1				1			3M	4008	FOAM TAPE 1/8" THK x 1/2W x 49/16 L	
1				1				112821-G1	INSULATOR	
.48				32			3M	1194	COPPER FOIL TAPE, 2"W x 5 3/4"L	USED @ T2
1				1				LM112834-G1	CRT EXTENSION CABLE ASSY	
1				1				112904-G1	FISHPAPER OUTLINE	
1				1				112924-G1	OVERLAY	
1				1			SAMTEC	TSW-1-05-16-TS	TERMINAL STRIP, 5 POS	

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SIZE A | CODE IDENT. NO. 23207 | LM 112810-G1

ASSEMBLY SHEET SIZE

SHEET 2 OF 2

U OF M CODE | 1 PIECE 6 PAIR 52 U. S. FLUID OZ. 55 U. S. GAL. | 5 SET 32 FEET 54 U. S. LIQUID QT. 68 POUND. AVDP

PRELIMINARY

SEP 15

LM 112815-G1

(Page 1 of 6)

* IN PART ITEM: SE :OL. DENOTES VENDOR URCE CONTROL OR SPECIFICATION CONTROL DRAWING

LIST OF MATERIALS

DRAWING NUMBER LM112815-G1 D

QTY REQD G1	QTY REQD G2	QTY REQD G3	QTY REQD G4	U OF M	ITEM NO.	SIZE	CODE IDENT.	PART OR IDENTIFYING NO.	NOMENCLATURE OR DESCRIPTION	REF. DESIG.	
REF				-				112815-G1	P.CKT BD CRT CONTROL BD ASSY.		
1				1				112816	INCL MARKING		
REF				-				112817	DRILLING		
REF				-				112818	MASTER		
REF				-				112819	SOLDER MASK		
REF				-				112820-G1	SCHEMATIC		
4				1			AMP	643114-1	LOW PROFILE STRIP RECEPTACLE 14-POS.	USED AT U15 & U16	
3				1			AMP	531220-1	SHUNT JUMPER	USED AT J1	

DRANETZ TECHNOLOGIES, INC.
EDISON, NEW JERSEY U.S.A.

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CHECKED BY DATE

SIZE A | CODE IDENT. NO. 23207 | LM112815-G1

ASSEMBLY SHEET SIZE

SHEET 2 OF 6

U OF M CODE					
1 PIECE	6 PAIR	52 U. S. FLUID OZ.	55 U. S. GAL.		
5 SET	32 FEET	54 U. S. LIQUID QT.	68 POUND, AVDP		

* IN PART NO. ...L. DENOTES VENDOR ITEM: SEE ...CE CONTROL OR SPECIFICATION CONTROL DRAWING

LIST OF ....TERIALS

DRAWING NU...ER LM112815-G1 D

QTY REQD G1	QTY REQD G2	QTY REQD G3	QTY REQD G4	U OF M	ITEM NO.	SIZE	CODE IDENT.	PART OR IDENTIFYING NO.	NOMENCLATURE OR DESCRIPTION	REF. DESIG.
13				1				103209-G1	CAP FXD CERM .1uF, ±20%, 50V	C1
0				1				104026-G3	CAP FXD MICA 100PF, ±5%, 500V	C2
–				–				—	SAME AS C1	C3
–				–				—		C4
–				–				—		C5
–				–				—		C6
–				–				—		C7
–				–				—		C8
–				–				—		C9
–				–				—		C10
–				–				—		C11
–				–				—		C12
–				–				—		C13
–				–				—		C14

DRANETZ TECHNOLOGIES, INC.
EDISON, NEW JERSEY U.S.A.

PREPARED BY DATE

CHECKED BY DATE

SIZE A | CODE IDENT. NO. 23207 | LM112815-G1

ASSEMBLY SHEET SIZE

SHEET 3 OF 6

U OF M CODE | 1 PIEC... 6 PAIR 52 U. S. FLUID OZ. 55 U. S. GAL.
5 SE... 32 FEET 54 U. S. LIQUID QT. 68 POUND, AVDP

* IN PART ITEM. SEE ...OL. DENOTES VENDOR ...RCE CONTROL OR SPECIFICATION CONTROL DRAWING

LIST OF ...ATERIALS

DRAWING N...ER LM112815-G1 D

QTY REQD G1	QTY REQD G2	QTY REQD G3	QTY REQD G4	U OF M	ITEM NO.	SIZE	CODE IDENT.	PART OR IDENTIFYING NO.	NOMENCLATURE OR DESCRIPTION	REF. DESIG.
1				1			AMP	102944-8	POST HEADER DUAL ROW 8 POSTS	J1
									NOT USED	J2
1				1			AMP	1-640454-6	POST HEADER 16 POS .1 CTR	J3
0				1			AMP	87348-4	POST HEADER 4 POS .1 CTR	J4
1				1			AMP	532505-1	CONN., EUROCARD TYPE C, 96 PIN RT ANGLE	P1
2				1				104505	TRANSISTOR	Q1
–				–				—	SAME AS Q1	Q2
1				1				RCR07GF332J	RES FXD COMP 3.3K, ±5%, ¼W	R1
1				1				RCR07GF103J	RES FXD COMP 10K, ±5%, ¼W	R2
1				1				104733-G2	RES NETWORK 10PIN SIP 47K	RN1

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PREPARED BY DATE

CHECKED BY DATE

SIZE A | CODE IDENT. NO. 23207 | LM112815-G1

ASSEMBLY SHEET SIZE | SHEET 4 OF 6

U OF M CODE | 1 PIECE 6 PAIR 52 U. S. FLUID OZ. .55 U. S. GAL. | 5 SET 32 FEET 54 U. S. LIQUID QT. 68 POUND, AVDP

* IN PART NO. 'L' DENOTES VENDOR ITEM: SEE . CE CONTROL OR SPECIFICATION CONTROL DRAWING

LIST OF ...TERIALS

DRAWING NU...R LM112815-G1 D

QTY REQD G1	QTY REQD G2	QTY REQD G3	QTY REQD G4	U OF M	ITEM NO.	SIZE	CODE IDENT.	PART OR IDENTIFYING NO.	NOMENCLATURE OR DESCRIPTION	REF. DESIG.
2				1				104271-G7	IC OCTAL 3 STATE TRANS	U1
-				-				——	SAME AS U1	U2
1				1				104381-G9	IC 8 BIT MAG COMP	U3
2				1				104271-G2	IC. OCTAL 3-STATE TRANSP. LATCH	U4
-				-				——	SAME AS U4	U5
1				1				112007-G7	IC HEX 3 STATE BUFFER	U6
1				1				104220-G5	IC DUAL D FLIP FLOP	U7
3				1				104392-G4	IC OCTAL 3 STATE D LATCH	U8
2				1				112007-G6	IC 4 BIT COUNTER	U9
-				-				——	SAME AS U9	U10
2				1				104392-G7	IC OCTAL 3 STATE	U11
2				1				104214-G9	IC 8 BIT COUNTER	U12
-				-				——	SAME AS U12	U13
-				-				——	SAME AS U11	U14
2				1				112034-G4	IC STATIC RAM 32k x 8	U15
-				-				——	SAME AS U15	U16
-				-				——	SAME AS U8	U17

DRANETZ TECHNOLOGIES, INC.
EDISON, NEW JERSEY U.S.A.

PREPARED BY DATE

CHECKED BY DATE

SIZE A | CODE IDENT. NO. 23207 | LM112815-G1

ASSEMBLY SHEET SIZE

SHEET 5 OF 6

U OF M CODE | 1 PIECE 6 PAIR 52 U. S. FLUID OZ. 55 U. S. GAL.
5 SET 32 FEET 54 U. S. LIQUID QT. 68 POUND, AVDP

* IN PART ITEM: SE... COL. DENOTES VENDOR ...URCE CONTROL OR SPECIFICATION CONTROL DRAWING

LIST OF MATERIALS

LM DRAWING ...BER 112815-G1 D

QTY REQD G1	QTY REQD G2	QTY REQD G3	QTY REQD G4	U OF M	ITEM NO.	SIZE	CODE IDENT.	PART OR IDENTIFYING NO.	NOMENCLATURE OR DESCRIPTION	REF. DESIG.
–				–				——	SAME AS U8	U18
2				1				104221-G5	IC DATA SELECT MUX	U19
–				–				——	SAME AS U19	U20
3				1				104392-G3	IC. QUAD OR GATE	U21
–				–				——	SAME AS U21	U22
1				1				104271-G9	IC HEX INVERTER	U23
1				1				104271-G4	IC DECODER	U24
1				1				112007-G1	IC 13 INPUT NAND	U25
–				–				——	SAME AS U21	U26
1				1				110891-G2	PREFORMED JUMPER .1 SP.	W1
1				1				110894-G3	CRYSTAL, 20 MHz	Y1

DRANETZ TECHNOLOGIES, INC.
EDISON, NEW JERSEY U.S.A.

PREPARED BY DATE

CHECKED BY DATE

SIZE A | CODE IDENT. NO. 23207 | LM 112815-G1

ASSEMBLY SHEET SIZE

SHEET 6 OF 6

U OF M CODE | 1 PIECE 5 SET | 6 PAIR 32 FEET | 52 U. S. FLUID OZ. 54 U. S. LIQUID QT. | 55 U. S. GAL. 68 POUND, AVDP

OGLVIE PRESS LANCASTER N Y

PRELIMINARY

SEP 15

LM 112825-G1

(Page 1 of 4)

* IN PART ITEM: SE. COL. DENOTES VENDOR SOURCE CONTROL OR SPECIFICATION CONTROL DRAWING

LIST OF MATERIALS

DRAWING NUMBER LM112825-G1 C

QTY REQD G1	QTY REQD G2	QTY REQD G3	QTY REQD G4	U OF M	ITEM NO.	SIZE	CODE IDENT.	PART OR IDENTIFYING NO.	NOMENCLATURE OR DESCRIPTION	REF. DESIG.
REF				-				112825-G1	P.CKT BD. VIDEO CONT BD. ASSY.	
1				1				112826	INCL. MARKING	
REF				-				112827	DRILLING	
REF				-				112828	MASTER	
REF				-				112829	SOLDER MASK	
REF				-				112830-G1	SCHEMATIC	
									NOT USED	C1
5				1				103209-G2	CAP FXD CERM .22UF, ±20%, 50V	C2
—				-				——	SAME AS C2	C3
—				-				——		C4
—				-				——		C5
—				-				——		C6
1				1				104011-G2	CAP FXD MICA 1000PF, ±5%, 100V	C7

DRANETZ TECHNOLOGIES, INC.
EDISON, NEW JERSEY U.S.A.

PREPARED BY DATE

CHECKED BY DATE

SIZE A | CODE IDENT. NO. 23207 | LM 112825-G1

ASSEMBLY SHEET SIZE

SHEET 2 OF 4

U OF M CODE | 1 PIECE 5 SET | 6 PAIR 32 FEET | 52 U. S. FLUID OZ. 54 U. S. LIQUID QT. | 55 U. S. GAL. 68 POUND, AVDP

OGLVE PRESS LANCASTER N Y

* IN PART ITEM: SI \. COL. DENOTES VENDOR OURCE CONTROL OR SPECIFICATION CONTROL DRAWING

LIST O. MATERIALS

DRAWING NUMBER LM1128_5-G1 C

QTY REQD G1	QTY REQD G2	QTY REQD G3	QTY REQD G4	U OF M	ITEM NO.	SIZE	CODE IDENT.	PART OR IDENTIFYING NO.	NOMENCLATURE OR DESCRIPTION	REF. DESIG.
1				1			AMP	1-640457-6	POST HEADER, RT ANGLE, 16 POS, .1 CTR.	J1
1				1			AMP	1-640445-0	POST HEADER, 10 POS, .156 CTR.	J2
0				1			AMP	103029-3	POST HEADER, 3POS .1 CTR	J3
1				1				103286	TRANSISTOR	Q1
									NOT USED	R1
									NOT USED	R2
1				1				RCR07G102J	RES FXD COMP 1K, ±5%, 1/4W	R3
2				1				RCR07G511J	RES FXD COMP 510Ω ±5%, 1/4W	R4
—				—				—	SAME AS R4	R5
3				1				RCR07G470J	RES FXD COMP 47, ±5%, 1/4W	R6
2				1				RCR07G221J	RES FXD COMP 220Ω ±5%, 1/4W	R7
—				—				——	SAME AS R7	R8
—				—				——	SAME AS R6	R9
—				—				——	SAME AS R6	R10
1				1				RCR07GF162J	RES FXD COMP 1.6K, ±5%, 1/4W	R11

DRANETZ TECHNOLOGIES, INC.
EDISON, NEW JERSEY U.S.A.

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SIZE A | CODE IDENT. NO. 23207 | LM 112825-G1

ASSEMBLY SHEET SIZE

SHEET 3 OF 4

U OF M CODE					
1	CE	6 PAIR	32 U. S. FLUID OZ.	55 U. S. GAL.	
5		32 FEET	54 U. S. LIQUID QT.	68 POUND, AVDP	

OGLVE PRESS LANCASTER N Y

* IN PA[illegible] O. COL. DENOTES VENDOR ITEM: S[illegible] - SOURCE CONTROL OR SPECIFICATION CONTROL DRAWING

LIST OF MATERIALS

DRAWING NUMBER LM112825-G1 C

QTY REQD G1	QTY REQD G2	QTY REQD G3	QTY REQD G4	U OF M	ITEM NO.	SIZE	CODE IDENT.	PART OR IDENTIFYING NO.	NOMENCLATURE OR DESCRIPTION	REF. DESIG.
1				1				RCR07GF473J	RES FXD COMP 47K, ±5%, 1/4W	R12
1				1				104392-G2	I.C. DUAL "D" TYPE FLIP FLOP	U1
1				1				104271-G6	I.C. DUAL ONE SHOT	U2
1				1				112030-G1	I.C. DUAL "D" TYPE FLIP FLOP	U3
2				1				104222-G5	I.C. DUAL PERIPHERAL DRIVER	U4
-				-				——	SAME AS U4	U5
1				1				104392-G9	IC QUAD 2 INPUT AND	U6
1				1				104392-G1	IC QUAD 2 INPUT NAND	U7
1				1				104271-G9	IC HEX INVERTER	U8
1				1				104214-G9	IC 8 BIT COUNTER	U9
1				1				112007-G6	IC 4 BIT PRELOADABLE COUNTER	U10
1				1				104392-G5	IC DUAL 4 INPUT NAND	U11

DRANETZ TECHNOLOGIES, INC.
EDISON, NEW JERSEY U.S.A.

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SIZE A | CODE IDENT. NO. 23207 | LM112825-G1

ASSEMBLY SHEET SIZE

SHEET 4 OF 4

U OF M CODE | 1 PIECE 5 SET | 6 PAIR 32 FEET | 52 U. S. FLUID OZ. 54 U. S. LIQUID QT. | 55 U. S. GAL. 68 POUND, AVDP

OGLVIE PRESS LANCASTER N.Y.

PRELIMINARY

SEP 15

LM 112831-G1

(Page 1 of 2)

* IN PART COL. DENOTES VENDOR ITEM: SEE URCE CONTROL OR SPECIFICATION CONTROL DRAWING

LIST OF MATERIALS

DRAWING NUMBER LM 112831-G1 A

QTY REQD G1	QTY REQD G2	QTY REQD G3	QTY REQD G4	U OF M	ITEM NO.	SIZE	CODE IDENT.	PART OR IDENTIFYING NO.	NOMENCLATURE OR DESCRIPTION	REF. DESIG.	
REF				-				112831-G1	CONTROL/VIDEO TIMING INTERFACE SIGNAL CABLE ASSY		
2				1			AMP	1-640443-6	RECEPTACLE, 16 PIN	P1	
-				-			-	-	SAME AS P1	P2	
.3				32				113214-G3	FLAT CABLE, 28 AWG, 16 COND		

DRANETZ TECHNOLOGIES, INC.
EDISON, NEW JERSEY U S A

PREPARED BY DATE

CHECKED BY DATE

SIZE A | CODE IDENT. NO. 23207 | LM 112831-G1

ASSEMBLY SHEET SIZE

SHEET 2 OF 2

U OF M CODE | 1 PIECE 5 SET | 6 PAIR 32 FEET | 52 U. S. FLUID OZ. 54 U. S. LIQUID QT. | 55 U. S. GAL. 68 POUND, AVDP

OGILVIE PRESS LANCASTER N Y

PRELIMINARY

SEP 15

LM 112832-G1

(Page 1 of 2)

* IN PAR[illegible] COL. DENOTES VENDOR ITEM: SEE [illegible]URCE CONTROL OR SPECIFICATION CONTROL DRAWING

LIST OF [illegible]ATERIALS

DRAWING NUMBER LM 112832-G1 B

QTY REQD G1	QTY REQD G2	QTY REQD G3	QTY REQD G4	U OF M	ITEM NO.	SIZE	CODE IDENT.	PART OR IDENTIFYING NO.	NOMENCLATURE OR DESCRIPTION	REF. DESIG.	
REF				-				112832-G1	CRT/VIDEO TIMING INTERFACE SIGNAL CABLE ASSY		
1				1			AMP	1-640428-0	CONN HOUSING (10 CKT)	P1	
1				1			AMP	583479-1	CONN, CRIMP SNAP-IN (10CKT)	P2	
10				1			AMP	583261-1	CONTACT, CRIMP SNAP-IN, 20-24 AWG	USE @ P2	
.6				32				113231-G1	FLAT CABLE, 22 AWG, 10 COND		
1				1			AMP	583462-1	KEYING PLUG		

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EDISON, NEW JERSEY U.S.A.

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SIZE A | CODE IDENT. NO. 23207 | LM 112832-G1

ASSEMBLY SHEET SIZE | SHEET 2 OF 2

U OF M CODE | 1 PIECE 5 SET | 6 PAIR 32 FEET | 52 U. S. FLUID OZ. 54 U. S. LIQUID QT. | 55 U. S. GAL. 68 POUND, AVDP

OGILVIE PRESS LANCASTER N Y

PRELIMINARY

SEP 15

LM 112834-G1

(Page 1 of 2)

* IN PART NO. .. DENOTES VENDOR ITEM: SEE SOURCE CONTROL OR SPECIFICATION CONTROL DRAWING

LIST OF MATERIALS

DRAWING NUMBER LM 112834-G1 A

QTY REQD G1	QTY REQD G2	QTY REQD G3	QTY REQD G4	U OF M	ITEM NO.	SIZE	CODE IDENT.	PART OR IDENTIFYING NO.	NOMENCLATURE OR DESCRIPTION	REF. DESIG.	
REF				—				112834-G1	CRT EXTENSION CABLE ASSY		
2				1			AMP	103685-4	RECEPTACLE (5 POS)	P1	
—				—			—	—	SAME AS P1	P2	
.7				32				113214-G5	FLAT RIBBON CABLE, 28 AWG, 26 COND		

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EDISON, NEW JERSEY U.S.A.

PREPARED BY DATE

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SIZE A | CODE IDENT. NO. 23207 | LM 112834-G1

ASSEMBLY SHEET SIZE

SHEET 2 OF 2

U OF M CODE | 1 PIECE 6 PAIR 52 U. S. FLUID OZ. 55 U. S. GAL. | 5 SET 32 FEET 54 U. S. LIQUID QT. 68 POUND, AVDP

PRELIMINARY

SEP 15

LM 112875-G1

(Page 1 of 9)

* IN PART NO. COL. DENOTES VENDOR ITEM: SEE SOURCE CONTROL OR SPECIFICATION CONTROL DRAWING

LIST OF MATERIALS

DRAWING NUMBER LM 112875-G1 D

QTY REQD G1	QTY REQD G2	QTY REQD G3	QTY REQD G4	U OF M	ITEM NO.	SIZE	CODE IDENT.	PART OR IDENTIFYING NO.	NOMENCLATURE OR DESCRIPTION	REF. DESIG.
REF				--				112875-G1	P.CKT. BD. FRONT PANEL INTF. ASSY	
1				1				112876	INCL. MARKING	
REF				--				112877	DRILLING	
REF				--				112878	MASTER	
REF				-				112879	SOLDER MASK	
REF				-				112880-G1	SCHEMATIC	
0								113202-G1	OSCILLATOR	Y1

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EDISON, NEW JERSEY U.S.A.

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SIZE A | CODE IDENT. NO. 23207 | LM 112875-G1

ASSEMBLY SHEET SIZE

* IN PART NO. COL. DENOTES VENDOR ITEM: SEE SOURCE CONTROL OR SPECIFICATION CONTROL DRAWING

LIST OF MATERIALS

DRAWING NUMBER LM112875-G1 D

QTY REQD G1	QTY REQD G2	QTY REQD G3	QTY REQD G4	U OF M	ITEM NO.	SIZE	CODE IDENT.	PART OR IDENTIFYING NO.	NOMENCLATURE OR DESCRIPTION	REF. DESIG.
									NOT USED	C1
5				1				104055-G1	CAP FXD TANT 15μF ±10%, 20V	C2
—				—				—	SAME AS C2	C3
—				—				—	↓	C4
—				—				—	↓	C5
1				1				104018-G3	CAP FXD MICA 100PF ±5%, 100V	C6
4				1				103209-G1	CAP FXD CERM. .1μF ±20%, 50V	C7
—				—				—	SAME AS C7	C8
—				—				—	↓	C9
—				—				—	↓	C10
1				1				104021-G1	CAP FXD MICA, 1000PF ±5%, 100V	C11
11				1				103209-G2	CAP FXD CERM .22μF ±20%, 50V	C12
—				—				—	SAME AS C12	C13
—				—				—	↓	C14
—				—				—	↓	C15
—				—				—	↓	C16
—				—				—	↓	C17
—				—				—	↓	C18

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EDISON, NEW JERSEY U.S.A.

PREPARED BY DATE
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SIZE A | CODE IDENT. NO. 23207 | LM112875-G1
ASSEMBLY SHEET SIZE
SHEET 3 OF

* IN PART NO. COL. DENOTES VENDOR ITEM: SEE SOURCE CONTROL OR SPECIFICATION CONTROL DRAWING

LIST OF MATERIALS

DRAWING NUMBER LM 112875-G1 D

QTY REQD G1	QTY REQD G2	QTY REQD G3	QTY REQD G4	U OF M	ITEM NO.	SIZE	CODE IDENT.	PART OR IDENTIFYING NO.	NOMENCLATURE OR DESCRIPTION	REF. DESIG.
—				—				—	SAME AS C12	C19
—				—				—	↓	C20
—				—				—	↓	C21
—				—				—	SAME AS C2	C22
—				—				—	SAME AS C12	C23
1				1				110749-G9	I.C. SOCKET, 40 PIN	USED @ U27
8				1				113219-G1	SOCKET STRIP, 15 PIN	USED @ U13-U16

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EDISON, NEW JERSEY U S A

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SIZE A | CODE IDENT. NO. 23207 | LM 112875-G1

ASSEMBLY SHEET SIZE

* IN PART NO. COL. DENOTES VENDOR ITEM: SEE SOURCE CONTROL OR SPECIFICATION CONTROL DRAWING

LIST OF MATERIALS

LM DRAWING NUMBER 112875-G1 D

QTY REQD G1	QTY REQD G2	QTY REQD G3	QTY REQD G4	U OF M	ITEM NO.	SIZE	CODE IDENT.	PART OR IDENTIFYING NO.	NOMENCLATURE OR DESCRIPTION	REF. DESIG.
									NOT USED	J1
									NOT USED	J2
1				1			AMP	1-87543-0	HEADER ASSY, DUAL 10	J3
3				1			AMP	103029-3	HEADER ASSY, 3POS	J4
—				—			—	—	SAME AS J4	J5
1				1				110841-G1	STEREO JACK	J6
1				1			SAMTEC	TSW-105-10-T-S-RE	POST HEADER ASSY, 5 POS.	J7
—				—			—	—	SAME AS J4	J8
2				1			AMP	103029-2	HEADER ASSY, 2 POS.	J9
—				—				—	SAME AS J9	J10
1				1			AMP	532505-1	CONNECTOR, 96 PIN	P1
4				1			AMP	531220-1	SHUNT JUMPER, 2 POS	USED @ J3, J5 & J8

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SIZE A | CODE IDENT. NO. 23207 | LM 112875-G1

ASSEMBLY SHEET SIZE

SHEET 50

* IN PART NO. COL. DENOTES VENDOR ITEM: SEE SOURCE CONTROL OR SPECIFICATION CONTROL DRAWING

LIST OF MATERIALS

DRAWING NUMBER LM 112875-G1 D

QTY REQD G1	QTY REQD G2	QTY REQD G3	QTY REQD G4	U OF M	ITEM NO.	SIZE	CODE IDENT.	PART OR IDENTIFYING NO.	NOMENCLATURE OR DESCRIPTION	REF. DESIG.	
1				1				104506	TRANSISTOR	Q1	
1				1				RCR07G302J	RES FXD COMP 3K ±5%, 1/4W	R1	
1				1				RCR07G102J	RES FXD COMP 1K ±5%, 1/4W	R2	
									NOT USED	R3	
2				1				RCR07G103J	RES FXD COMP. 10k ±5%, 1/4W	R4	
1				1				RCR07G204J	RES FXD COMP 200K ±5%, 1/4W	R5	
									NOT USED	R6	
									↓	R7	
										R8	
										R9	
4				1				104719-G3	RES VAR 10K ±10%, 1/2W	R10	
—				—				—	SAME AS R10	R11	
—				—				—	↓	R12	
—				—				—	↓	R13	
1				1				RCR07G105J	RES FXD COMP 1M ±5%, 1/4W	R14	

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EDISON, NEW JERSEY U.S.A.

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SIZE A | CODE IDENT. NO. 23207 | LM 112875-G1

ASSEMBLY SHEET SIZE

* IN PART NO. COL. DENOTES VENDOR ITEM: SEE SOURCE CONTROL OR SPECIFICATION CONTROL DRAWING

LIST OF MATERIALS

DRAWING NUMBER LM112875-G1 D

QTY REQD G1	QTY REQD G2	QTY REQD G3	QTY REQD G4	U OF M	ITEM NO.	SIZE	CODE IDENT.	PART OR IDENTIFYING NO.	NOMENCLATURE OR DESCRIPTION	REF. DESIG.
—				←				—	SAME AS R4	R15
3				1				104733-G2	RES NETWORK, 10 PIN SIP, 47K	RN1
—				—				—	SAME AS RN1	RN2
—				—				—	SAME AS RN1	RN3
2				1				104734-G5	RES NETWORK, 10 PIN SIP, 220K	RN4
—				—				—	SAME AS RN4	RN5
2				1				104876-G1	SWITCH, ROTARY, P.C. MOUNT	S1
0								—	SAME AS S1	S2
—				—				—	SAME AS S1	S3
0									SAME AS S1	S4
1				1				LM112933-G1	KNOB & CAP } EITHER/	USED @ S1, S3
								LM112933-G2	KNOB & CAP } OR	

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SIZE A | CODE IDENT. NO. 23207 | LM112875-G1

ASSEMBLY SHEET SIZE

SHEET 7 OF 9

* IN PART NO. COL. DENOTES VENDOR ITEM: SEE SOURCE CONTROL OR SPECIFICATION CONTROL DRAWING

LIST OF MATERIALS

DRAWING NUMBER LM112875-G1 D

QTY REQD G1	QTY REQD G2	QTY REQD G3	QTY REQD G4	U OF M	ITEM NO.	SIZE	CODE IDENT.	PART OR IDENTIFYING NO.	NOMENCLATURE OR DESCRIPTION	REF. DESIG.
4				1				104271-G2	I.C. OCTAL LATCH	U1
—								—	SAME AS U1	U2
2				1				104392-G4	I.C. OCTAL LATCH TRI-STATE	U3
—				—				—	SAME AS U3	U4
									NOT USED	U5
										U6
										U7
										U8
										U9
										U10
										U11
										U12
4				1				112034-G1	I.C. RAM 32KX8 MODULE	U13
—				—				—	SAME AS U13	U14
—				—				—		U15
—				—				—		U16
3				1				104271-G3	I.C. 1OF 8 DECODER	U17
—				—				—	SAME AS U17	U18

DRANETZ TECHNOLOGIES, INC.
EDISON NEW JERSEY U S A

PREPARED BY DATE

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SIZE A | CODE IDENT. NO. 23207 | LM112875-G1

ASSEMBLY SHEET SIZE

SHEET 8 OF 9

* IN PART NO. COL. DENOTES VENDOR ITEM: SEE SOURCE CONTROL OR SPECIFICATION CONTROL DRAWING

LIST OF MATERIALS

DRAWING NUMBER LM112875-G1 D

QTY REQD G1	QTY REQD G2	QTY REQD G3	QTY REQD G4	U OF M	ITEM NO.	SIZE	CODE IDENT.	PART OR IDENTIFYING NO.	NOMENCLATURE OR DESCRIPTION	REF. DESIG.	
2				1				104271-G7	I.C. OCTAL 3STATE TRANS	U19	
—				—				—	SAME AS U19	U20	
—				—				—	SAME AS U1	U21	
—				—				—	SAME AS U1	U22	
1				1				112007-G1	I.C. 13-INPUT NAND GATE	U23	
—				—				—	SAME AS U17	U24	
1				1				104381-G9	I.C. 8 BIT MAG COMP	U25	
1				1				104392-G3	I.C. QUAD 2-INPUT ORGATE	U26	
1				1				112033-G1	I.C. DUART	U27	
1				1				104271-G4	I.C. DUAL 1OF4 DECODER	U28	
1				1				112039-G1	I.C. RS232 BUFFER/DRIVER	U29	
2				1				104236-G1	I.C. DUAL OP AMP	U30	
—				—				—	SAME AS U30	U31	
2				1				104203-G5	I.C. ANALOG MULTIPLEXER	U32	
—				—				—	SAME AS U32	U33	
1				1				104278-G1	I.C. NEG. REGULATOR	U34	
1				1				104258-G3	I.C. ANALOG TO DIGITAL CONV.	U35	
1				1				104392-G2	I.C. DUAL "D" FLIP-FLOP	U36	

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EDI[illegible] NEW JERSEY U.S.A

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SIZE A | CODE IDENT. NO. 23207 | LM112875-G1

ASSEMBLY SHEET SIZE

SHEET 9 OF 9

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PRELIMINARY

SEP 15

LM 112911-GC 1

(Page 1 of 3)

* IN PART NO. COL. DENOTES VENDOR ITEM: SEE SOURCE CONTROL OR SPECIFICATION CONTROL DRAWING

LIST OF MATERIALS

DRAWING NUMBER LM112911-G[illegible] C

QTY REQD G1	QTY REQD G2	QTY REQD G3	QTY REQD G4	U OF M	ITEM NO.	SIZE	CODE IDENT.	PART OR IDENTIFYING NO.	NOMENCLATURE OR DESCRIPTION	REF. DESIG.
REF	0			–				112911-G1	FLOPPY MAINFRAME ASSY	
0	REF			–				112911-G2	FLOPPY MAINFRAME ASSY	
1	0			1				LM112840-G1	P.CKT BD. FLOPPY INTERFACE BD.	A6A2
0	1			1				LM112840-G2	P.CKT BD. FLOPPY INTERFACE BD.	A6A2
1	1			1				LM112845-G1	P.CKT BD. FLOPPY CONTROLLER	A6A1
1	1			1				LM112839-G1	FLOPPY INTERFACE SIGNAL CABLE	
1	1			1				LM112836-G1	FLOPPY INTERFACE POWER CABLE	
1	1			1			AMATOM	2221-N120	#4 INSULATING WASHER, FLAT	
2	0			1				113226-G1	FLOPPY DRIVE	
0	2			1				113226-G2	FLOPPY DRIVE	
1	1			1				112914-G1	FLOPPY DISC MOUNT BKT	
1	1			1				112912-G1	BRACKET	
1	1			1				112912-G2	BRACKET	
8	8			1				113212-G4	SCREW, METRIC, PAN HD, PHILLIPS	
1	0			1				112994-G1	FLOPPY PANEL (INCL. MARKING)	
0	1			1				112994-G2	FLOPPY PANEL (INCL. MARKING)	

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SIZE A | CODE IDENT. NO. 23207 | LM112911-G[illegible]

ASSEMBLY SHEET SIZE

* IN PART NO. COL. DENOTES VENDOR ITEM: SEE SOURCE CONTROL OR SPECIFICATION CONTROL DRAWING

LIST OF MATERIALS

DRAWING NUMBER LM112911-G[ ] C

QTY REQD G1	QTY REQD G2	QTY REQD G3	QTY REQD G4	U OF M	ITEM NO.	SIZE	CODE IDENT.	PART OR IDENTIFYING NO.	NOMENCLATURE OR DESCRIPTION	REF. DESIG.
2	2			1				112913-G1	PLATE	
1.5	1.5			32			3M	4408	FOAM TAPE (DOUBLE COATED)	

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SIZE A | CODE IDENT. NO. 23207 | LM112911-G[ ]

ASSEMBLY SHEET SIZE

SHEET 3 OF 3

PRELIMINARY

SEP 15

LM 112845-G1

(Page 1 of 6)

* IN PART NO. COL. DENOTES VENDOR ITEM: SEE SOURCE CONTROL OR SPECIFICATION CONTROL DRAWING

LIST OF MATERIALS

DRAWING NUMBER LM112845-G1 B

QTY REQD G1	QTY REQD G2	QTY REQD G3	QTY REQD G4	U OF M	ITEM NO.	SIZE	CODE IDENT.	PART OR IDENTIFYING NO.	NOMENCLATURE OR DESCRIPTION	REF. DESIG.
REF				-				112845-G1	P.CKT BD. FLOPPY CONTROLLER	
1				1				112846	INCLU. MARKING	
REF				-				112847	DRILLING	
REF				-				112848	MASTER	
REF				-				112849	SOLDER MASK	
REF				-				112850-G1	SCHEMATIC	
3				1			AMP	531220-1	SHUNT JUMPER	

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SIZE A | CODE IDENT. NO. 23207 | LM112845-G1

ASSEMBLY SHEET SIZE

SHEET 2 OF 6

* IN PART NO. COL. DENOTES VENDOR ITEM: SEE SOURCE CONTROL OR SPECIFICATION CONTROL DRAWING

LIST OF MATERIALS

DRAWING NUMBER LM 112845-G1 B

QTY REQD G1	QTY REQD G2	QTY REQD G3	QTY REQD G4	U OF M	ITEM NO.	SIZE	CODE IDENT.	PART OR IDENTIFYING NO.	NOMENCLATURE OR DESCRIPTION	REF. DESIG.
13				1				103209-G1	CAP FXD CERM .1uF, ±20%, 50V	C1
–				–				—	SAME AS C1	C2
–				–				—		C3
–				–				—		C4
–				–				—		C5
–				–				—		C6
–				–				—		C7
–				–				—		C8
–				–				—		C9
–				–				—		C10
–				–				—		C11
–				–				—		C12
–				–				—		C13

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SIZE A | CODE IDENT. NO. 23207 | LM 112845-G1

ASSEMBLY SHEET SIZE

SHEET 3 OF 6

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* IN PART NO. COL. DENOTES VENDOR ITEM: SEE SOURCE CONTROL OR SPECIFICATION CONTROL DRAWING

LIST OF MATERIALS

DRAWING NUMBER LM 112845-G1 B

QTY REQD G1	QTY REQD G2	QTY REQD G3	QTY REQD G4	U OF M	ITEM NO.	SIZE	CODE IDENT.	PART OR IDENTIFYING NO.	NOMENCLATURE OR DESCRIPTION	REF. DESIG.	
1				1			AMP	1-102108-1	34 PIN RT. ANGLE POST HEADER	J1A	
									NOT USED	J1B	
1				1			AMP	87543-4	POST HEADER DUAL ROW 8 POSTS	J2	
2				1			AMP	87543-8	POST HEADER DUAL ROW 16 POSTS	J3	
–				–				—	SAME AS J3	J4	
0				1			AMP	87348-3	POST HEADER SINGLE ROW 3 POSTS	J5	
1				1			AMP	532505-1	CONN., RT. ANGLE, 96 PIN	P1	
1				1			AMP	640099-4	POST HEADER SINGLE ROW 4 POSTS	P2	
2				1				104505	TRANSISTOR	Q1	
–				–				—	SAME AS Q1	Q2	
1				1				RCR07GF103J	RES FXD COMP 10K, ±5%, 1/4W	R1	
1				1				RCR07GF202J	RES FXD COMP 2K ±5%, 1/4W	R2	

DRANETZ TECHNOLOGIES, INC.
EDISON NEW JERSEY U S A

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CHECKED BY DATE

SIZE A | CODE IDENT. NO. 23207 | LM 112845-G1

ASSEMBLY SHEET SIZE

* IN PART NO. COL. DENOTES VENDOR ITEM: SEE SOURCE CONTROL OR SPECIFICATION CONTROL DRAWING

LIST OF MATERIALS

DRAWING NUMBER LM 112845-G1 B

QTY REQD G1	QTY REQD G2	QTY REQD G3	QTY REQD G4	U OF M	ITEM NO.	SIZE	CODE IDENT.	PART OR IDENTIFYING NO.	NOMENCLATURE OR DESCRIPTION	REF. DESIG.
4				1				104733-G3	RES NETWORK, 100K	RN1
–				–				——	SAME AS RN1	RN2
–				–				——	↓	RN3
–				–				——	↓	RN4
1				1				104732-G7	RES NETWORK, 150Ω	RN5
1				1				104847-G2	SWITCH, DIP TYPE	S1
3				1				104381-G9	IC 3 STATE 8BIT MAG COMP	U1
–				–				——	SAME AS U1	U2
–				–				——	SAME AS U1	U3
1				1				104381-G8	IC 3 STATE OCTAL BUS TRANS	U4
2				1				104392-G7	IC NONINVERTING OCTAL DR.	U5
1				1				104271-G4	IC DUAL 1OF4 DECODER/DEMUX	U6
1				1				112015-G1	IC FLOPPY DISK CONTROLLER	U7
–				–				——	SAME AS U5	U8
2				1				112014-G4	IC OCTAL INV. BUS/LINE DRIVER	U9

DRANETZ TECHNOLOGIES, INC. EDISON, NEW JERSEY U.S.A.

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SIZE A | CODE IDENT. NO. 23207 | LM 112845-G1

ASSEMBLY SHEET SIZE

SHEET 5

LANCASTER N Y

* IN PART NO. COL. DENOTES VENDOR ITEM: SEE SOURCE CONTROL OR SPECIFICATION CONTROL DRAWING

LIST OF MATERIALS

DRAWING NUMBER LM 112845-G1 B

QTY REQD G1	QTY REQD G2	QTY REQD G3	QTY REQD G4	U OF M	ITEM NO.	SIZE	CODE IDENT.	PART OR IDENTIFYING NO.	NOMENCLATURE OR DESCRIPTION	REF. DESIG.	
—				—				——	SAME AS U9	U10	
1				1				104392-G4	IC 3 STATE OCTAL "D" FLIP FLOP	U11	
1				1				104392-G3	IC QUAD 2 INPUT OR GATE	U12	
1				1				104392-G2	IC DUAL "D" FLIP FLOP	U13	
1				1				110894-G1	CRYSTAL. OSC. 16MHZ.	Y1	

DRANETZ TECHNOLOGIES, INC.
EDISON, NEW JERSEY U.S.A.

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CHECKED BY DATE

SIZE A | CODE IDENT. NO. 23207 | LM 112845-G1

ASSEMBLY SHEET SIZE

SHEET 6 OF 6

PRELIMINARY

SEP 15

LM 112840-G[ ]

(Page 1 of 2)

* IN PART NO. COL. DENOTES VENDOR ITEM: SEE SOURCE CONTROL OR SPECIFICATION CONTROL DRAWING

LIST OF MATERIALS

DRAWING NUMBER LM112840-G[ ] B

QTY REQD G1	QTY REQD G2	QTY REQD G3	QTY REQD G4	U OF M	ITEM NO.	SIZE	CODE IDENT.	PART OR IDENTIFYING NO.	NOMENCLATURE OR DESCRIPTION	REF. DESIG.
REF	0			-				112840-G1	P.CKT BD. FLOPPY INTERFACE ASSY	
0	REF							112840-G2	P.CKT BD. FLOPPY INTERFACE ASSY	
1	1							112841	INCL. DRILLING	
REF	REF							112842	MASTER	
REF	REF							112843	SOLDER MASK	
REF	0							112844-G1	SCHEMATIC	
0	REF							112844-G2	SCHEMATIC	
2	2			1			AMP	1-103177-0	RECEPTACLE ASSY	J1
1	1			1			AMP	2-102049-0	HEADER ASSY	J2
—	—			—			—	—	SAME AS J1	J3
2	0			1				113222-G1	SOCKET STRIP, 4 POS	J4A
0	2			1				113222-G1	SOCKET STRIP, 4 POS	J4B
1	0			1			AMP	640454-4	HEADER, 4 PIN POST	J5A
0	1			1			AMP	640454-4	HEADER, 4 PIN POST	J5B
—	0			—				—	SAME AS J4A	J6A
0	—			—				—	SAME AS J4A	J6B

DRANETZ TECHNOLOGIES, INC.
EDISON, NEW JERSEY U.S.A.

PREPARED BY DATE

CHECKED BY DATE

SIZE A | CODE IDENT. NO. 23207 | LM112840-G[ ]

ASSEMBLY SHEET SIZE

SHEET 2 OF 2

OGLVIE PRESS LANCASTER, N.Y.

PRELIMINARY

SEP 15

LM 112839-G1

(Page 1 of 2)

* IN PAR COL. DENOTES VENDOR
ITEM: SE URCE CONTROL OR
SPECIFICATION CONTROL DRAWING

LIST OF MATERIALS

DRAWING IBER LM112839-G1 A

QTY REQD G1	QTY REQD G2	QTY REQD G3	QTY REQD G4	U OF M	ITEM NO.	SIZE	CODE IDENT.	PART OR IDENTIFYING NO.	NOMENCLATURE OR DESCRIPTION	REF. DESIG.
REF				-				112839-G1	FLOPPY INTERFACE SIGNAL CABLE ASSY	
2				1				746183-9	RECEPTACLE, 34 PIN	P1
-				-				——	SAME AS P1	P2
.5				32				113214-G6	FLAT RIBBON CABLE	

DRANETZ TECHNOLOGIES, INC.
EDISON, NEW JERSEY U.S.A.

PREPARED BY DATE
CHECKED BY DATE

SIZE A | CODE IDENT. NO. 23207 | LM112839-G1

ASSEMBLY SHEET SIZE | SHEET 2 OF 2

U OF M CODE | 1 PIECE 5 SET | 6 PAIR 32 FEET | 52 U. S. FLUID OZ. 54 U. S. LIQUID QT. | 55 U. S. GAL. 68 POUND, AVDP

UGLVE PRESS LANCASTER N Y

PRELIMINARY

SEP 15

LM 112836-G1

(Page 1 of 2)

* IN PART NO ... DENOTES VENDOR ITEM: SEE SOURCE CONTROL OR SPECIFICATION CONTROL DRAWING

LIST OF MATERIALS

DRAWING NUM LM112836-G1 A

QTY REQD G1	QTY REQD G2	QTY REQD G3	QTY REQD G4	U OF M	ITEM NO.	SIZE	CODE IDENT.	PART OR IDENTIFYING NO.	NOMENCLATURE OR DESCRIPTION	REF. DESIG.
REF				-				112836-G1	FLOPPY INTERFACE POWER CABLE ASSY	
2				1				640442-4	CONN. HOUSING	P1
—				-				——	SAME AS P1	P2
.5				32				113215-G1	FLAT RIBBON CABLE	

DRANETZ TECHNOLOGIES, INC.
EDISON, NEW JERSEY U.S.A.

PREPARED BY DATE

CHECKED BY DATE

SIZE A | CODE IDENT. NO. 23207 | LM112836-G1

ASSEMBLY SHEET SIZE

SHEET 2 OF 2

U OF M CODE | 1 PIECE 5 SET | 6 PAIR 32 FEET | 52 U. S. FLUID OZ. 54 U. S. LIQUID QT. | 55 U. S. GAL. 68 POUND, AVDP

PRELIMINARY

SEP 15

LM 112855-G1

(Page 1 of 4)

* IN PAR[illegible]O. COL. DENOTES VENDOR ITEM: S SOURCE CONTROL OR SPECIFICATION CONTROL DRAWING

LIST O[illegible] MATERIALS

DRAWIN[illegible]MBER LM 112855-G1 D

QTY REQD G1	QTY REQD G2	QTY REQD G3	QTY REQD G4	U OF M	ITEM NO.	SIZE	CODE IDENT.	PART OR IDENTIFYING NO.	NOMENCLATURE OR DESCRIPTION	REF. DESIG.	
REF				-				112855-G1	MAIN FRAME, PRINTER		
1				1				LM112865-G1	P. CKT BD PRINTER	A13A1	
1				1				112857-G1	PRINTER BRACKET		
1				1				112860-G1	TOP FIXED PLATE		
1				1				LM112892-G1	PRINTER ASSY		
1				1				112882-G1	DRIVE WHEEL		
1				1				112853-G1	L.H. FIXED PLATE		
1				1				112854-G2	DRAWER SIDE L.H.		
1				1				112858-G1	LOWER DRAWER BRACKET		
1				1				112854-G1	DRAWER SIDE R.H.		
1				1				112861-G1	DRAWER COVER		
1				1				112862-G1	DOOR		
1				1				112851-G1	BRACKET		
2				1				112874-G2	DRAWER SPACER		
1				1				112852-G1	R.H. FIXED PLATE		
1				1				112863-G1	HINGE		
1				1				112859-G1	MOTOR BRACKET		
1				1				112872-G1	LATCH BRACKET		

DRANETZ TECHNOLOGIES, INC.
EDISON, NEW JERSEY U S A

PREPARED BY DATE

CHECKED BY DATE

SIZE A | CODE IDENT. NO. 23207 | LM 112855-G1

ASSEMBLY SHEET SIZE

SHEET 2 OF 4

U OF M CODE					
	1 PIECE	6 PAIR	52 U. S. FLUID OZ.	55 U. S. GAL.	
	5 SET	32 FEET	54 U. S. LIQUID QT.	68 POUND, AVDP	

OGLVE PRESS LANCASTER N Y

* IN PAR). COL. DENOTES VENDOR
ITEM: S SOURCE CONTROL OR
SPECIFICATION CONTROL DRAWING

LIST O. MATERIALS

DRAWING IMBER LM 112855-G1 D

QTY REQD G1	QTY REQD G2	QTY REQD G3	QTY REQD G4	U OF M	ITEM NO.	SIZE	CODE IDENT.	PART OR IDENTIFYING NO.	NOMENCLATURE OR DESCRIPTION	REF. DESIG.	
1				1				113209-G1	TORSION SPRING		
1				1				113210-G1	MOTOR		
1				1				110707-G1	PULLEY		
1				1				107542-G1	O RING		
1				1				112864-G1	PAPER SPOOL SUPPORT		
1				1				112941-G1	PAPER SPOOL		
1				1				112873-G1	PAPER SPOOL SHAFT		
1				1				112871-G1	SPOOL SPRING		
1				1				112856-G1	LOWER FIXED PLATE		
1				1				112884-G3	SPACER		
2				1				112943-G1	PAPER SPOOL RETAINER		
1				1				112874-G1	DRAWER SPACER		
4				1				112883-G1	SLIDE BUSHING		
1				1				113211-G1	SET SCREW, ALLEN #4-40 x 3/16 CUP POINT		
3				1			AMATOM	8078-A-0440-17	STANDOFF, 3/16 RD x 5/16 LG.		
2				1			ACCURATE	3020R-A-1.062-14	SPACER, 1/4 RD x 1 1/16" LG (.115 HOLE)		
2				1				113018-G1	SPRING PIN		
1				1				113208-G1	EXTENSION SPRING		

DRANETZ TECHNOLOGIES, INC.
EDISON, NEW JERSEY U.S.A.

PREPARED BY DATE
CHECKED BY DATE

SIZE A | CODE IDENT. NO. 23207 | LM 112855-G1

ASSEMBLY SHEET SIZE | SHEET 3 OF 4

U OF M CODE | CE 6 PAIR 52 U. S. FLUID OZ. 55 U. S. GAL.
32 FEET 54 U. S. LIQUID QT. 68 POUND, AVDP

OGLVE PRESS LANCASTER N Y

* IN PAR ( ). COL. DENOTES VENDOR ITEM: S OURCE CONTROL OR SPECIFICATION CONTROL DRAWING

LIST O MATERIALS

DRAWING BER LM 112855-G1 D

QTY REQD G1	QTY REQD G2	QTY REQD G3	QTY REQD G4	U OF M	ITEM NO.	SIZE	CODE IDENT.	PART OR IDENTIFYING NO.	NOMENCLATURE OR DESCRIPTION	REF. DESIG.
1				1				113207-G1	LATCH, PUSH RELEASE	
3				1			AMATOM	2680-25031-N188	SHOULDER WASHER, NYLON	
4				1			TINNERMAN	T99220-SS-68-5/16	GROOVELESS RETAINING RING	
2				1				113212-G1	SCREW, PAN HD SLOTTED	
4				1			AMATOM	7452-SS-0440	SHOULDER SCREW #440 x .188 LG.	
4				1			AMATOM	2258-N129	INSULATING WASHER, FLAT	
1				1			AMATOM	9284-PH-194	SPACER	
3							AMATOM	2642-25047-N187	SHOULDER WASHER, NYLON	
REF				-				112992	WIRE LIST	
1				1			AMP	640441-2	CONNECTOR 2 POS.	
1				1				112944-G1	HOLD DOWN CLAMP	
1				1				112942-G1	PAPER GUIDE	
.2				32			3M	4108	SINGLE SIDED FOAM TAPE 2 1/2 LG x 1/2 W x 1/8 THK	
.1				32			3M	4416	DOUBLE SIDED FOAM TAPE 1 1/4 LG x 3/4 W x 1/16 THK	
2				1				103259-G3	SCREW, PAN HD #4-40 x 1 1/2 LG	
1				ROLL				110888-G1	THERMAL PAPER	

DRANETZ TECHNOLOGIES, INC.
EDISON, NEW JERSEY U.S.A

PREPARED BY DATE

CHECKED BY DATE

SIZE A | CODE IDENT. NO. 23207 | LM 112855-G1

ASSEMBLY SHEET SIZE | SHEET 4 OF 4

U OF M CODE | 1 PIECE 6 PAIR 52 U. S. FLUID OZ. 55 U. S. GAL. | 5 SET 32 FEET 54 U. S. LIQUID QT. 68 POUND, AVDP

OGLVE PRESS LANCASTER N Y

PRELIMINARY

SEP 15

LM 112865-G1

* IN PART NO. COL. DENOTES VENDOR ITEM: SEE SOURCE CONTROL OR SPECIFICATION CONTROL DRAWING

LIST OF MATERIALS

DRAWING NUMBER LM112865-G1 E

QTY REQD G1	QTY REQD G2	QTY REQD G3	QTY REQD G4	U OF M	ITEM NO.	SIZE	CODE IDENT.	PART OR IDENTIFYING NO.	NOMENCLATURE OR DESCRIPTION	REF. DESIG.
REF				-				112865-G1	P.CKT BD. PRINTER BD. ASSY.	
1				1				112866	INCL. MARKING	
REF				-				112867	DRILLING	
REF				-				112868	MASTER	
REF				-				112869	SOLDER MASK	
REF				-				112870-G1	SCHEMATIC	
1				1			H.H. SMITH	1416-6	SOLDER LUG	
									NOT USED	J1
2				1			AMP	87543-8	CONN. DUAL ROW POST HEADER	J2
1				1			AMP	EITHER/OR 2-102050-6 / 2-102443-5	ST. POST HEADER	J3
1				1			AMP	87543-5	CONN. DUAL ROW POST HEADER	J4
-				-				—	SAME AS J2	J5
1				1			AMP	103029-3	3 POS HEADER ASSY	J6
1				1			AMP	640454-2	CONN 2 PIN POLARIZED	J7
1				1			AMP	520257-2	MODULAR JACK, TOP ENTRY	J8
5				1			AMP	531220-1	SHUNT JUMPER	USED @ J5 & J6

PRINTER BD.

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PREPARED BY DATE

CHECKED BY DATE

SIZE A | CODE IDENT. NO. 23207 | LM112865-G1

ASSEMBLY SHEET SIZE

SHEET 2 OF 5

* IN PART NO. COL. DENOTES VENDOR ITEM: SEE SOURCE CONTROL OR SPECIFICATION CONTROL DRAWING

LIST OF MATERIALS

DRAWING NUMBER LM112865-G1 E

QTY REQD G1	QTY REQD G2	QTY REQD G3	QTY REQD G4	U OF M	ITEM NO.	SIZE	CODE IDENT.	PART OR IDENTIFYING NO.	NOMENCLATURE OR DESCRIPTION	REF. DESIG.
5				1				104008-G1	CAP FXD TANT .47UF, ±10%, 75V	C1
–				–				——	SAME AS C1	C2
–				–				——	↓	C3
–				–				——	↓	C4
1				1				104007-G1	CAP FXD TANT 4.7UF, ±10%, 50V	C5
1				1				104075-G3	CAP FXD ELECT. 1000UF, +20%, 10V	C6
6				1				103209-G1	CAP FXD CERM .1UF, ±20%, 50V	C7
–				–				——	SAME AS C7	C8
–				–				——	↓	C9
–				–				——	↓	C10
–				–				——	↓	C11
–				–				——	↓	C12
–				–				——	SAME AS C1	C13
1				1				104405-G1	DIODE, RECTIFIER	CR1
1				1				110823-G1	AUDIO TRANSDUCER	LS1

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PREPARED BY DATE

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SIZE A | CODE IDENT. NO. 23207 | LM112865-G1

ASSEMBLY SHEET SIZE

SHEET 3 OF 5

* IN PART NO. COL. DENOTES VENDOR ITEM: SEE SOURCE CONTROL OR SPECIFICATION CONTROL DRAWING

LIST OF MATERIALS

DRAWING NUMBER LM112865-G1 E

QTY REQD G1	QTY REQD G2	QTY REQD G3	QTY REQD G4	U OF M	ITEM NO.	SIZE	CODE IDENT.	PART OR IDENTIFYING NO.	NOMENCLATURE OR DESCRIPTION	REF. DESIG.
1				1			AMP	532505-1	CONN. RT ANGLE 96 PIN	P1
1				1				104506	TRANSISTOR	Q1
1				1				104547-G2	TRANSISTOR FET	Q2
2				1				113203-G1	CAP, SWITCH	USED @ S1 + S2
2				1				104874	SWITCH, SPDT MOM.	S1
-				-				—	SAME AS S1	S2
1				1				RCR07G302J	RES FXD COMP 3K, ±5%, 1/4W	R1
1				1				RCR07G102J	RES FXD COMP 1K, ±5%, 1/4W	R2
1				1				RCR07G273J	RES FXD COMP 27K, ±5%, 1/4W	R3
1				1				RCR07G822J	RES FXD COMP 8.2K, ±5%, 1/4W	R4
1				1				104703-G6	RES VAR 20K	R5
1				1				RCR07G391J	RES FXD COMP 390, ±5%, 1/4W	R6
1				1				RCR07G681J	RES FXD COMP 680, ±5%, 1/4W	R7
1				1				RCR07G104J	RES FXD COMP 100K, ±5%, 1/4W	R8
1				1				RCR07G754J	RES FXD COMP 750K, ±5%, 1/4W	R9

DRANETZ TECHNOLOGIES, INC.
EDISON NEW JERSEY U S A

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SIZE A | CODE IDENT. NO. 23207 | LM112865-G1

ASSEMBLY SHEET SIZE

SHEET 4 OF 5

OGLVE PRESS LANCASTER N Y

* IN PART NO. COL. DENOTES VENDOR ITEM: SEE SOURCE CONTROL OR SPECIFICATION CONTROL DRAWING

LIST OF MATERIALS

DRAWING NUMBER LM112865-G1 E

QTY REQD G1	QTY REQD G2	QTY REQD G3	QTY REQD G4	U OF M	ITEM NO.	SIZE	CODE IDENT.	PART OR IDENTIFYING NO.	NOMENCLATURE OR DESCRIPTION	REF. DESIG.
3				1				104733-G2	RES. NETWORK 47K	RN1
—				—				——	SAME AS RN1	RN2
—				—				——	SAME AS RN1	RN3
2				1				104381-G9	IC 3 STATE 8 BIT MAG COMP.	U1
—				—				——	SAME AS U1	U2
1				1				104271-G4	IC DUAL 1OF 4 DECODER/DEMUX	U3
3				1				104271-G6	IC DUAL RETRIG MONO VIBR.	U4
2				1				104271-G2	IC OCTAL D TYPE LATCH	U5
2				1				112040-G1	IC DRIVER	U6
—				—				——	SAME AS U5	U7
—				—				——	SAME AS U6	U8
1				1				104392-G7	IC OCTAL 3STATE DRIVER	U9
1				1				104271-G9	IC HEX INVERTER	U10
—				—				——	SAME AS U4	U11
—				—				——	SAME AS U4	U12

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ASSEMBLY SHEET SIZE

SIZE A | CODE IDENT. NO. 23207 | LM112865-G1

SHEET 5 OF 5

OGLVE PRESS LANCASTER N.Y.

PRELIMINARY

SEP 15

LM 112892-G1

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* IN PART ITEM: SEE ...OL. DENOTES VENDOR ...RCE CONTROL OR SPECIFICA...ON CONTROL DRAWING

LIST OF ...ATERIALS

DRAWING N...ER LM 11289c-G1 B

QTY REQD G1	QTY REQD G2	QTY REQD G3	QTY REQD G4	U OF M	ITEM NO.	SIZE	CODE IDENT.	PART OR IDENTIFYING NO.	NOMENCLATURE OR DESCRIPTION	REF. DESIG.	
REF				-				112892-G1	PRINTER ASSY		
1				1				110885-G2	PRINTER		
1				1				113239-G1	FLAT FLEX CABLE ASSY.		

DRANETZ TECHNOLOGIES, INC.
EDISON NEW JERSEY U S A

PREPARED BY DATE

CHECKED BY DATE

SIZE	CODE IDENT. NO.	LM 112892-G1
A	23207	

ASSEMBLY SHEET SIZE

SHEET 2 OF 2

U OF M CODE					
	1 PIECE	6 PAIR	52 U. S. FLUID OZ.	55 U. S. GAL.	
	5 SET	32 FEET	54 U. S. LIQUID QT.	68 POUND, AVDP	

OGLVE PRESS LANCASTER N Y

PRELIMINARY

SEP 15

LM 112905-G1

* IN PART NO. COL. DENOTES VENDOR ITEM: SEE SOURCE CONTROL OR SPECIFICATION CONTROL DRAWING

LIST OF MATERIALS

LM DRAWING NUMBER 112905-G1 D

QTY REQD G1	QTY REQD G2	QTY REQD G3	QTY REQD G4	U OF M	ITEM NO.	SIZE	CODE IDENT.	PART OR IDENTIFYING NO.	NOMENCLATURE OR DESCRIPTION	REF. DESIG.
REF				-				112905-G1	P CKT BD CHANNEL INPUT	
1				1				112906	INCL. MRK.	
REF				-				112907	DRILLING	
REF				-				112908	MASTER	
REF				-				112909	SOLDER MASK	
REF				-				112910-G1	SCHEMATIC	
1				1				106708	REAR INPUT TERMINAL COVER	
2				1				103259-G4	SCREW, SLOTTED PAN HD	
1				1				112921-G1	SHIELD	
2				1			PALNUT	PT 138055-5	PUSH NUT BOLT RETAINER	
2				1			AMATOM	8218A0632-17	STANDOFF	
2				1				113063-G1	BRACKET	
1				1				103253-G15	BARRIER BLOCK W/CAPTIVE SCREWS	
1				1				113081-G1	REAR PANEL INCL. MRK.	
REF				-				113082-G1	S/M	
REF				-				113083-G1	ARTWORK.	

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SIZE A | CODE IDENT. NO. 23207 | LM 112905-G1

ASSEMBLY SHEET SIZE

* IN PART NO. COL. DENOTES VENDOR ITEM: SEE SOURCE CONTROL OR SPECIFICATION CONTROL DRAWING

LIST OF MATERIALS

DRAWING NUMBER LM 112905-G1 D

QTY REQD G1	QTY REQD G2	QTY REQD G3	QTY REQD G4	U OF M	ITEM NO.	SIZE	CODE IDENT.	PART OR IDENTIFYING NO.	NOMENCLATURE OR DESCRIPTION	REF. DESIG.
1				6				104137	CAP MATCHED PAIR, .43PF ±10% 6KV	C1
									SAME AS C1-MATCHED PAIR	C2
1				6				104122	CAP MET POLY, .033 µF ±2% 50V	C3
1				6				104138	CAP FXD MICA, 330PF ±2% 500V	C4
—				—				———	SAME AS C3-MATCHED PAIR	C5
—				—				———	SAME AS C4-MATCHED PAIR	C6
5				1				104055-G1	CAP FXD TANT, 15 µF ±10% 20V	C7
—				—				———	SAME AS C7	C8
—				—				———	SAME AS C7	C9
25				1				103209-G2	CAP FXD CER, .22 µF ±20% 50V	C10
—				—				———	SAME AS C10	C11
1				1				104109-G8	CAP VAR, 3-10 PF 100V	C12
3				1				104026-G9	CAP FXD MICA, 5 PF ±1/2 PF 500V	C13
									NOT USED	C14
									NOT USED	C15
—				—				———	SAME AS C10	C16
—				—				———		C17
—				—				———		C18

DRANETZ TECHNOLOGIES, INC.
EDISON, NEW JERSEY U.S.A.

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SIZE A | CODE IDENT. NO. 23207 | LM 112905-G1
ASSEMBLY SHEET SIZE
SHEET 3 OF

* IN PART NO COL. DENOTES VENDOR ITEM. SEE SOURCE CONTROL OR SPECIFICATION CONTROL DRAWING

LIST OF MATERIALS

DRAWING NUMBER LM 112905-G1 D

QTY REQD G1	QTY REQD G2	QTY REQD G3	QTY REQD G4	U OF M	ITEM NO.	SIZE	CODE IDENT.	PART OR IDENTIFYING NO.	NOMENCLATURE OR DESCRIPTION	REF. DESIG.
—				—				———	SAME AS C10	C19
—				—				———	SAME AS C7	C20
—				—				———	SAME AS C7	C21
—				—				———	SAME AS C10	C22
									NOT USED	C23
									NOT USED	C24
—				—				———	SAME AS C10	C25
—				—				———	↓	C26
—				—				———	↓	C27
1				1				104016-G5	CAP FXD MICA, 24PF, ±5%, 500V	C28
2				1				104109-G7	CAP VAR 4.5-20PF 100V	C29
—				—				———	SAME AS C13	C30
3				1				104044-G1	CAP FXD FILM .033 μF ±10% 100V	C31
—				—				———	SAME AS C31	C32
—				—				———	SAME AS C31	C33
									NOT USED	C34
—				—				———	SAME AS C10	C35
									NOT USED	C36

DRANETZ TECHNOLOGIES, INC.
EDISON NEW JERSEY U S A

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ASSEMBLY SHEET SIZE

* IN PART NO. COL. DENOTES VENDOR ITEM: SEE SOURCE CONTROL OR SPECIFICATION CONTROL DRAWING

LIST OF MATERIALS

LM DRAWING NUMBER 112905-G1 D

QTY REQD G1	QTY REQD G2	QTY REQD G3	QTY REQD G4	U OF M	ITEM NO.	SIZE	CODE IDENT.	PART OR IDENTIFYING NO.	NOMENCLATURE OR DESCRIPTION	REF. DESIG.	
—				--				———	SAME AS C13	C37	
—				—				———	SAME AS C10	C38	
—				—				———		C39	
—				—				———		C40	
—				—				———		C41	
1				1				104018-G1	CAP FXD MICA, 39PF, ±5%, 500V	C42	
1				1				104022-G3	CAP FXD MICA, 56PF, ±5%, 500V	C43	
2				1				104109-G3	CAP VAR, 6.5-30PF, 100V	C44	
—				—				———	SAME AS C10	C45	
—				—				———	SAME AS C10	C46	
3				1				104038-G2	CAP FXD CER, .01μF, ±10%, 100V	C47	
—				—				———	SAME AS C10	C48	
—				—				———	SAME AS C10	C49	
—				—				———	SAME AS C47	C50	
1				1				104038-G1	CAP FXD CER, .001μF, ±10%, 200V	C51	
									NOT USED	C52	
—				—				———	SAME AS C10	C53	
—				—				———	SAME AS C10	C54	

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ASSEMBLY SHEET SIZE

SHEET 5 OF

* IN PART NO. COL. DENOTES VENDOR ITEM: SEE SOURCE CONTROL OR SPECIFICATION CONTROL DRAWING

LIST OF MATERIALS

DRAWING NUMBER LM 112905-G1 D

QTY REQD G1	QTY REQD G2	QTY REQD G3	QTY REQD G4	U OF M	ITEM NO.	SIZE	CODE IDENT.	PART OR IDENTIFYING NO.	NOMENCLATURE OR DESCRIPTION	REF. DESIG.
—				—				———	SAME AS C10	C55
1				1				104027-G3	CAP FXD MICA, 15PF, ±5%, 500V	C56
—				—				———	SAME AS C10	C57
—				—				———	↓	C58
—				—				———	↓	C59
									NOT USED	C60
—				—				———	SAME AS C29	C61
—				—				———	SAME AS C44	C62
1				1				104018-G3	CAP FXD MICA, 100PF, ±5%, 500V	C63
—				—				———	SAME AS C47	C64
1				1				104027-G2	CAP FXD MICA 10PF, ±5%, 500V	C65

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SIZE A | CODE IDENT. NO. 23207 | LM 112905-G1

ASSEMBLY SHEET SIZE

* IN PART NO. COL. DENOTES VENDOR ITEM: SEE SOURCE CONTROL OR SPECIFICATION CONTROL DRAWING

LIST OF MATERIALS

DRAWING NUMBER LM 112905-G1 D

QTY REQD G1	QTY REQD G2	QTY REQD G3	QTY REQD G4	U OF M	ITEM NO.	SIZE	CODE IDENT.	PART OR IDENTIFYING NO.	NOMENCLATURE OR DESCRIPTION	REF. DESIG.
8				1				101345	DIODE, LOW LEAKAGE	CR1
—				—				———	SAME AS CR1	CR2
—				—				———	↓	CR3
—				—				———	↓	CR4
2				1				104403-G3	DIODE, ZENER 3.9V	CR5
—				—				———	SAME AS CR5	CR6
4				1				102899	DIODE, HOT CARRIER	CR7
—				—				———	SAME AS CR7	CR8
—				—				———	↓	CR9
—				—				———	↓	CR10
—				—				———	SAME AS CR1	CR11
—				—				———	↓	CR12
—				—				———	↓	CR13
—				—				———	↓	CR14
2				1				104404-G5	DIODE, ZENER 9.1V	CR15
—				—				———	SAME AS CR15	CR16
1				1				104412-G2	DIODE, HIGH SPEED SWITCHING	CR17

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SIZE	CODE IDENT. NO.	LM 112905-G1
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ASSEMBLY SHEET SIZE

SHEET 7 OF 14

* IN PART NO. COL. DENOTES VENDOR ITEM: SEE SOURCE CONTROL OR SPECIFICATION CONTROL DRAWING

LIST OF MATERIALS

LM DRAWING NUMBER 112905-G1 D

QTY REQD G1	QTY REQD G2	QTY REQD G3	QTY REQD G4	U OF M	ITEM NO.	SIZE	CODE IDENT.	PART OR IDENTIFYING NO.	NOMENCLATURE OR DESCRIPTION	REF. DESIG.
0								110897-G1	RELAY	K1
3				1				104624-G1	INDUCTOR, 2.2 µH, ±10%	L1
—				—				———	SAME AS L1	L2
—				—				———	SAME AS L1	L3
2				1				RCR07G152J	RES FXD COMP, 1.5K, ±5%, 1/4W	R1
—				—				———	SAME AS R1	R2
									NOT USED	R3
									NOT USED	R4
1				1				104719-G1	RES VAR, 500Ω, ±10%, 1/2W	R5
									NOT USED	R6
									NOT USED	R7
4				1				RN55C4021C	RES FXD FILM, 4.02K, ±.25%, 1/10W	R8
—				—				———	SAME AS R8	R9
4				1				RN55C2002F	RES FXD FILM, 20K, ±1%, 1/10W	R10

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ASSEMBLY SHEET SIZE

* IN PART NO. COL. DENOTES VENDOR ITEM: SEE SOURCE CONTROL OR SPECIFICATION CONTROL DRAWING

LIST OF MATERIALS

DRAWING NUMBER LM 112905-G1 D

QTY REQD G1	QTY REQD G2	QTY REQD G3	QTY REQD G4	U OF M	ITEM NO.	SIZE	CODE IDENT.	PART OR IDENTIFYING NO.	NOMENCLATURE OR DESCRIPTION	REF. DESIG.
—				—				———	SAME AS R10	R11
									NOT USED	R12
2				1				RN55C4990C	RES FXD FILM, 499Ω, .25%, 1/10W	R13
—				—				———	SAME AS R13	R14
1				1				RN55C2490F	RES FXD FILM, 249Ω, ±1%, 1/10W	R15
5				1				RCR07G202J	RES FXD COMP, 2K, ±5%, 1/4W	R16
2				1				RN55C1001C	RES FXD FILM, 1K, ±.25% 1/10W	R17
—				—				———	SAME AS R17	R18
2				1				RCR07G6R2J	RES FXD COMP, 6.2Ω, ±5%, 1/4W	R19
—				—				———	SAME AS R19	R20
4				1				RN55C4021F	RES FXD FILM, 4.02K, ±1%, 1/10W	R21
—				—				———	SAME AS R21	R22
—				—				———	SAME AS R16	R23
—				—				———	SAME AS R16	R24
1				1				RN55C3011F	RES FXD FILM, 3.01K, ±1%, 1/10W	R25
1				1				RN55C7501F	RES FXD FILM, 7.5K, ±1%, 1/10W	R26
1				1				RN55C5232F	RES FXD FILM, 52.3K, ±1%, 1/10W	R27
									NOT USED	R28

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SHEET 9 OF 31

* IN PART NO. COL. DENOTES VENDOR ITEM: SEE SOURCE CONTROL OR SPECIFICATION CONTROL DRAWING

LIST OF MATERIALS

DRAWING NUMBER LM 112905-G1 D

QTY REQD G1	QTY REQD G2	QTY REQD G3	QTY REQD G4	U OF M	ITEM NO.	SIZE	CODE IDENT.	PART OR IDENTIFYING NO.	NOMENCLATURE OR DESCRIPTION	REF. DESIG.
—				—				———	SAME AS R21	R29
—				—				———	SAME AS R16	R30
—				—				———	SAME AS R21	R31
									NOT USED	R32
									NOT USED	R33
2				1				112355	RES FXD NETWORK 40M/242K ±5%	R34
—				—				———	SAME AS R34	R35
2				1				RCR07G821J	RES FXD COMP 820Ω ±5% 1/4W	R36
—				—				———	SAME AS R36	R37
1				1				RCR07G222J	RES FXD COMP 2.2K ±5% 1/4W	R38
2				1				RN55C1471C	RES FXD FILM 1.47K ±.25% 1/10W	R39
2				1				RN55C24R9F	RES FXD FILM 24.9Ω ±1% 1/10W	R40
—				—				———	SAME AS R40	R41
—				—				———	SAME AS R39	R42
1				1				RN55C1002F	RES FXD FILM 10K ±1% 1/10W	R43
1				1				RN55C3240C	RES FXD FILM 324Ω ±.25% 1/10W	R44
2				1				RCR07G226J	RES FXD COMP 22M ±5% 1/4W	R45
—				—				———	SAME AS R45	R46

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* IN PART NO. COL. DENOTES VENDOR ITEM: SEE SOURCE CONTROL OR SPECIFICATION CONTROL DRAWING

LIST OF MATERIALS

DRAWING NUMBER LM 112905-G1 D

QTY REQD G1	QTY REQD G2	QTY REQD G3	QTY REQD G4	U OF M	ITEM NO.	SIZE	CODE IDENT.	PART OR IDENTIFYING NO.	NOMENCLATURE OR DESCRIPTION	REF. DESIG.
1				1				104742-G1	RES VAR, 100Ω, ±20%, 1/2W	R47
1				1				RN55C4990F	RES FXD FILM, 499Ω, ±1%, 1/10W	R48
1				1				RCR07G273J	RES FXD COMP, 27K, ±5%, 1/4W	R49
1				1				RN55D2001F	RES FXD FILM, 2K, ±1%, 1/10W	R50
—				—				———	SAME AS R16	R51
1				1				RN55C3651F	RES FXD FILM 3.65K, ±1%, 1/10W	R52
2				1				104719-G2	RES VAR, 5K, ±10%, 1/2W	R53
1				1				RN55C3481F	RES FXD FILM, 3.48K, ±1%, 1/10W	R54
1				1				RN55C3920F	RES FXD FILM, 392Ω, ±1%, 1/10W	R55
1				1				RN55C8062F	RES FXD FILM, 80.6K, ±1%, 1/10W	R56
—				—				———	SAME AS R53	R57
									NOT USED	R58
									NOT USED	R59
2				1				RN55C4421F	RES FXD FILM, 4.42K, ±1/4%, 1/10W	R60
—				—				———	SAME AS R60	R61
—				—				———	SAME AS R8	R62
—				—				———	SAME AS R8	R63
—				—				———	SAME AS R10	R64

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SHEET 11 OF 41

* IN PART NO. COL. DENOTES VENDOR ITEM: SEE SOURCE CONTROL OR SPECIFICATION CONTROL DRAWING

LIST OF MATERIALS

DRAWING NUMBER LM 112905-G1 D

QTY REQD G1	QTY REQD G2	QTY REQD G3	QTY REQD G4	U OF M	ITEM NO.	SIZE	CODE IDENT.	PART OR IDENTIFYING NO.	NOMENCLATURE OR DESCRIPTION	REF. DESIG.
—				—				————	SAME AS R10	R65
1				1				RN55C2491F	RES FXD FILM, 2.49K, ±1%, 1/10W	R66
1				1				RCR07G510JT	RES FXD COMP, 51Ω, ±5%, 1/4W	R67
1				1				RCR07G165J	RES FXD COMP, 1.6M, ±5%, 1/4W	R68
									NOT USED	R69
1				1				RCR07G100J	RES FXD COMP, 10Ω, ±5%, 1/4W	R70
1				1				RCR07G104J	RES FXD COMP, 100K, ±5%, 1/4W	R71
1				1				RN55C7502F	RES FXD FILM, 75K, ±1%, 1/10W	R72
1				1				104986-G1	HEATSINK	USED @ U8
									NOT USED	T1

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ASSEMBLY SHEET SIZE

* IN PART NO. COL. DENOTES VENDOR ITEM: SEE SOURCE CONTROL OR SPECIFICATION CONTROL DRAWING

LIST OF MATERIALS

LM DRAWING NUMBER 112905-G1 D

QTY REQD G1	QTY REQD G2	QTY REQD G3	QTY REQD G4	U OF M	ITEM NO.	SIZE	CODE IDENT.	PART OR IDENTIFYING NO.	NOMENCLATURE OR DESCRIPTION	REF. DESIG.
7				1				112044-G2	IC OP AMP	U1
—				—				———	SAME AS U1	U2
—				—				———	SAME AS U1	U3
1				1				104359	IC OP-AMP	U4
1				1				104241-G1	IC OP-AMP	U5
2				1				112045-G1	DIODE ARRAY	U6
1				1				104255-G3	IC QUAD HIGH SPEED SWITCH	U7
1				1				104241-G4	IC HI SPEED OP-AMP	U8
2				1				104329	IC VOLT COMP	U9
2				1				104220-G5	IC DUAL D FF	U10
—				—				———	SAME AS U9	U11
—				—				———	SAME AS U1	U12
—				—				———	↓	U13
—				—				———	↓	U14
1				1				104241-G2	IC QUAD COMP	U15
—				—				———	SAME AS U10	U16
1				1				104216-G5	IC MULTIVIBRATOR	U17
1				1				104214-G1	IC QUAD 2 INPUT NAND	U18

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SIZE	CODE IDENT. NO.	LM 112905-G1
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ASSEMBLY SHEET SIZE

SHEET 13 OF 14

* IN PART NO. COL. DENOTES VENDOR ITEM: SEE SOURCE CONTROL OR SPECIFICATION CONTROL DRAWING

LIST OF MATERIALS

LM DRAWING NUMBER 112905-G1 D

QTY REQD G1	QTY REQD G2	QTY REQD G3	QTY REQD G4	U OF M	ITEM NO.	SIZE	CODE IDENT.	PART OR IDENTIFYING NO.	NOMENCLATURE OR DESCRIPTION	REF. DESIG.
									NOT USED	U19
1				1				104210-G4	IC HEX OCTAL INVERTER	U20
1				1				104221-G1	IC DECODE DEMUX	U21
1				1				112044-G1	IC DUAL OP AMP	U22
1				1				104362	IC QUAD SWITCH	U23
1				1				104220-G8	IC OCTAL FF	U24
1				1				104287-G1	IC D TO A CONVERTER	U25
—				—				————	SAME AS U1	U26
1				1				104214-G3	IC TRIPLE INPUT NAND	U27
—				—				————	SAME AS U6	U28
3				1			AMP	86432-1	RECEPTACLE	E1
—				—				—	SAME AS E1	E2
—				—				—	SAME AS E1	E3
1				1			AMP	531797-1	96 PIN RT ANGLE CONN	P1

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PRELIMINARY

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LM 112915-G1

* IN PART NO. COL. DENOTES VENDOR ITEM: SEE SOURCE CONTROL OR SPECIFICATION CONTROL DRAWING

LIST OF MATERIALS

DRAWING NUMBER LM112915-G1 B

QTY REQD G1	QTY REQD G2	QTY REQD G3	QTY REQD G4	U OF M	ITEM NO.	SIZE	CODE IDENT.	PART OR IDENTIFYING NO.	NOMENCLATURE OR DESCRIPTION	REF. DESIG.
REF				-				112915-G1	P.CKT BD ANALOG TO DIGITAL CONV.	
1				1				112916	INCL. MARKING	
REF				--				112917	DRILLING	
REF				--				112918	MASTER	
REF				-				112919	SOLDER MASK	
REF				-				112920-G1	SCHEMATIC	
1				1				112921-G1	SHIELD	

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ASSEMBLY SHEET SIZE

SHEET 2 OF 9

GULVE PRESS LANCASTER N Y

* IN PART NO. COL. DENOTES VENDOR ITEM: SEE SOURCE CONTROL OR SPECIFICATION CONTROL DRAWING

LIST OF MATERIALS

DRAWING NUMBER LM112915-G1 B

QTY REQD G1	QTY REQD G2	QTY REQD G3	QTY REQD G4	U OF M	ITEM NO.	SIZE	CODE IDENT.	PART OR IDENTIFYING NO.	NOMENCLATURE OR DESCRIPTION	REF. DESIG.
27				1				103209-G2	CAP FXD CERM .22UF, ±20%, 50V	C1
–				–				——	SAME AS C1	C2
–				–				——	↓	C3
–				–				——	↓	C4
–				–				——	↓	C5
									NOT USED	C6
									NOT USED	C7
–				–					SAME AS C1	C8
–				–					SAME AS C1	C9
2				1				104022-G4	CAP FXD MICA 200PF, ±5%, 500V	C10
									NOT USED	C11
–				–					SAME AS C10	C12
2				1				104020-G1	CAP FXD MICA 470PF, ±5%, 500V	C13
–				–				——	SAME AS C13	C14
–				–				——	SAME AS C1	C15
–				–					SAME AS C1	C16
6				1				104055-G1	CAP FXD TANT. 15UF, ±10%, 20V	C17

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SHEET 3 of 4

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* IN PART NO. COL. DENOTES VENDOR ITEM. SEE SOURCE CONTROL OR SPECIFICATION CONTROL DRAWING

LIST OF MATERIALS

DRAWING NUMBER LM112915-G1 B

QTY REQD G1	QTY REQD G2	QTY REQD G3	QTY REQD G4	U OF M	ITEM NO.	SIZE	CODE IDENT.	PART OR IDENTIFYING NO.	NOMENCLATURE OR DESCRIPTION	REF. DESIG.
–				–				—	SAME AS C17	C18
–				–				—	SAME AS C17	C19
–				–				—	SAME AS C1	C20
–				–				—	↓	C21
–				–				—	↓	C22
–				–				—	↓	C23
–				–				—	↓	C24
–				–				—	SAME AS C17	C25
–				–				—	↓	C26
–				–				—	↓	C27
1				1				104038-G2	CAP FXD CERM .01UF, ±10%, 100V	C28
–				–				—	SAME AS C1	C29
–				–				—	↓	C30
–				–				—	↓	C31
–				–				—	↓	C32
–				–				—	↓	C33
–				–				—	↓	C34
–				–				—	↓	C35

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SIZE A | CODE IDENT. NO. 23207 | LM112915-G1

ASSEMBLY SHEET SIZE

* IN PART NO. COL. DENOTES VENDOR ITEM: SEE SOURCE CONTROL OR SPECIFICATION CONTROL DRAWING

LIST OF MATERIALS

DRAWING NUMBER LM112915-G1 B

QTY REQD G1	QTY REQD G2	QTY REQD G3	QTY REQD G4	U OF M	ITEM NO.	SIZE	CODE IDENT.	PART OR IDENTIFYING NO.	NOMENCLATURE OR DESCRIPTION	REF. DESIG.
—				—				———	SAME AS C1	C36
—				—				———	↓	C37
—				—				———	↓	C38
—				—				———	↓	C39
—				—				———	↓	C40
—				—				———	↓	C41
3				1				104412-G2	DIODE	CR1
—				—				———	SAME AS CR1	CR2
—				—				———	SAME AS CR1	CR3
4								104624-G1	INDUCTOR . 2.2 uH. ± 10%	L1
—				—				———	SAME AS L1	L2
—				—				———	↓	L3
—				—				———	↓	L4

DRANETZ TECHNOLOGIES, INC.
EDISON, NEW JERSEY U.S.A.

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SIZE A | CODE IDENT. NO. 23207 | LM112915-G1

ASSEMBLY SHEET SIZE

SHEET 5 of 5

* IN PART NO. COL. DENOTES VENDOR ITEM. SEE SOURCE CONTROL OR SPECIFICATION CONTROL DRAWING

LIST OF MATERIALS

DRAWING NUMBER LM112915-G1 B

QTY REQD G1	QTY REQD G2	QTY REQD G3	QTY REQD G4	U OF M	ITEM NO.	SIZE	CODE IDENT.	PART OR IDENTIFYING NO.	NOMENCLATURE OR DESCRIPTION	REF. DESIG.
1				1			AMP	531797-1	96 PIN RT ANGLE CONN.	P1
1				1				104515	TRANSISTOR	Q1
2				1				104742-G1	RES. VAR 100Ω ±20%, ½W	R1
–				–				—	SAME AS R1	R2
									NOT USED	R3
2				6				112353	RES MATCHED PAIR 4.99K ±.1%,	R4
									" " "	R5
–				–				—	SAME AS R4	R6
									SAME AS R5	R7
3				1				RN55C2001F	RES FXD FLM 2K, ± 1%, ⅒W	R8
–				–				—	SAME AS R8	R9
5				1				RCR07GF51DJ	RES FXD COMP 51Ω, ± 5%, ¼W	R10
–				–				—	SAME AS R10	R11
–				–				—	↓	R12
–				–				—	↓	R13
1				1				RN55C4990F	RES FXD FLM 499Ω ± 1%, ⅒W	R14

DRANETZ TECHNOLOGIES, INC.
EDISON, NEW JERSEY U.S.A.

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SIZE A | CODE IDENT. NO. 23207 | LM 112915-G1

ASSEMBLY SHEET SIZE

SHEET 6 OF 9

* IN PART NO. COL. DENOTES VENDOR ITEM: SEE SOURCE CONTROL OR SPECIFICATION CONTROL DRAWING

LIST OF MATERIALS

DRAWING NUMBER LM112915-G1 B

QTY REQD G1	QTY REQD G2	QTY REQD G3	QTY REQD G4	U OF M	ITEM NO.	SIZE	CODE IDENT.	PART OR IDENTIFYING NO.	NOMENCLATURE OR DESCRIPTION	REF. DESIG.
—				—				——	SAME AS R8	R15
1				1				104719-G3	RES VAR 10K, ±10%, 1/2W	R16
1				1				RCR07GF391J	RES FXD COMP 390, ±5%, 1/4W	R17
1				1				RCR07GF471J	RES FXD COMP 470, ±5%, 1/4W	R18
1				1				RCR07GF120J	RES FXD COMP 12Ω ±5%, 1/4W	R19
1				1				RCR07GF2R7J	RES FXD COMP 2.7Ω ±5%, 1/4W	R20
2				1				RCR20GF221J	RES FXD COMP 220, ±5%, 1/2W	R21
-				-				——	SAME AS R21	R22
1				1				104719-G4	RES VAR 20K, ±10%, 1/2W	R23
—				—				——	SAME AS R10	R24
1				1				RN55C2002F	RES FXD FLM 20K, ±1%, 1/10W	R25

DRANETZ TECHNOLOGIES, INC. EDISON, NEW JERSEY U.S.A.

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SIZE	CODE IDENT. NO.	LM112915-G1
A	23207	

ASSEMBLY SHEET SIZE

SHEET 7

OGLVE PRESS LANCASTER, N.Y.

* IN PART NO. COL. DENOTES VENDOR ITEM: SEE SOURCE CONTROL OR SPECIFICATION CONTROL DRAWING

LIST OF MATERIALS

DRAWING NUMBER LM112915-G1 B

QTY REQD G1	QTY REQD G2	QTY REQD G3	QTY REQD G4	U OF M	ITEM NO.	SIZE	CODE IDENT.	PART OR IDENTIFYING NO.	NOMENCLATURE OR DESCRIPTION	REF. DESIG.
4				1				104395-G1	IC OCTAL D TYPE FLIP FLOP	U1
–				–				——	SAME AS U1	U2
1				1				104237-G1	IC ANALOG-DIGITAL CONV.	U3
2				1				104220-G4	IC QUAD OR	U4
1				1				104207-G3	IC SAMPLE & HOLD AMP	U5
–				–				——	SAME AS U4	U6
1				1				104367	IC QUAD OP AMP	U7
1				1				104255-G2	IC 4 CH. DIFF MUX	U8
1				1				104214-G1	IC QUAD NAND	U9
1				1				104220-G7	IC QUAD D FLIP FLOP	U10
3				1				104221-G5	IC DUAL 4 TO 1 MUX	U11
1				1				104214-G8	IC DUAL 4 INP. AND	U12
2				1				112031-G2	IC 3 TO 8 DECODER	U13
1				1				112031-G1	IC QUAD D FLIP FLOP	U14
–				–				——	SAME AS U13	U15
1				1				104255-G3	IC QUAD HI-SPEED SWITCH	U16
1				1				104241-G6	IC HI-SPEED BUFFER	U17

DRANETZ TECHNOLOGIES, INC.
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SIZE A | CODE IDENT. NO. 23207 | LM 112915-G1

ASSEMBLY SHEET SIZE

SHEET 8 OF 9

* IN PART NO. COL. DENOTES VENDOR ITEM: SEE SOURCE CONTROL OR SPECIFICATION CONTROL DRAWING

LIST OF MATERIALS

DRAWING NUMBER LM112915-G1 B

QTY REQD G1	QTY REQD G2	QTY REQD G3	QTY REQD G4	U OF M	ITEM NO.	SIZE	CODE IDENT.	PART OR IDENTIFYING NO.	NOMENCLATURE OR DESCRIPTION	REF. DESIG.
1				1				112037-G1	IC REFERENCE 5V	U18
2				1				104241-G1	IC OP AMP	U19
1				1				112036-G1	IC FLASH ADC	U20
–				–				—	SAME AS U11	U21
–				–				—	SAME AS U11	U22
–				–				—	SAME AS U1	U23
–				–				—	SAME AS U1	U24
–				–				—	SAME AS U19	U25
2				1				110749-G8	IC SOCKET, 28 PIN	USED @ U3 & U20

DRANETZ TECHNOLOGIES, INC.
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SIZE A | CODE IDENT. NO. 23207 | LM 112915-G1

ASSEMBLY SHEET SIZE | SHEET 9 of 9

PRELIMINARY

SEP 15

LM 112925-G1

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* IN PART NO. COL. DENOTES VENDOR ITEM: SEE SOURCE CONTROL OR SPECIFICATION CONTROL DRAWING

LIST OF MATERIALS

DRAWING NUMBER LM112925-G1 B

QTY REQD G1	QTY REQD G2	QTY REQD G3	QTY REQD G4	U OF M	ITEM NO.	SIZE	CODE IDENT.	PART OR IDENTIFYING NO.	NOMENCLATURE OR DESCRIPTION	REF. DESIG.
REF				-				112925-G1	P.CKT BD FRONT END PROCESSOR ASSY	
1				1				112926	INCL. MARKING	
REF				-				112927	DRILLING	
REF				-				112928	MASTER	
REF				-				112929	SOLDER MASK	
REF				-				112930-G1	SCHEMATIC	
2				1			AMP	531220-1	SHUNT JUMPERS	USED @ J2

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SIZE A | CODE IDENT. NO. 23207 | LM 112925-G1

ASSEMBLY SHEET SIZE

SHEET 2 OF 6

* IN PART NO. COL. DENOTES VENDOR ITEM: SEE SOURCE CONTROL OR SPECIFICATION CONTROL DRAWING

LIST OF MATERIALS

DRAWING NUMBER LM112925-G1 B

QTY REQD G1	QTY REQD G2	QTY REQD G3	QTY REQD G4	U OF M	ITEM NO.	SIZE	CODE IDENT.	PART OR IDENTIFYING NO.	NOMENCLATURE OR DESCRIPTION	REF. DESIG.
1				1				104010-G2	CAP FXD MICA 15PF, ± 5%, 100V	C1
1				1			AMP	87543-8	DUAL 8 POST HEADER	J2
1				1				110891-G2	JUMPER, PREFORMED .1CC	W1
1				1			AMP	531797-1	CONN. 96 PIN RT ANGLE	P1
1				1				104733-G2	RES NETWORK 47K	RN1
2				1				104733-G9	RES NETWORK 300Ω	RN2
—				—				——	SAME AS RN2	RN3
9				1				104271-G2	IC OCTAL 3-STATE TRANSP LATCH	U1
—				—				——	SAME AS U1	U2
									NOT USED	U3
6				1				104263-G4	IC TRANS W/REG	U4
—				—				——	SAME AS U4	U5
—				—				——	SAME AS U4	U6

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ASSEMBLY SHEET SIZE

SHEET 3

* IN PART NO. COL. DENOTES VENDOR ITEM: SEE SOURCE CONTROL OR SPECIFICATION CONTROL DRAWING

LIST OF MATERIALS

DRAWING NUMBER LM112925-G1 B

QTY REQD G1	QTY REQD G2	QTY REQD G3	QTY REQD G4	U OF M	ITEM NO.	SIZE	CODE IDENT.	PART OR IDENTIFYING NO.	NOMENCLATURE OR DESCRIPTION	REF. DESIG.	
—				—				——	SAME AS U4	U7	
2				1				104395-G1	IC OCTAL LATCH	U8	
1				1				104381-G9	IC 8BIT MAG COMP	U9	
2				1				112034-G4	IC 32K x 8BIT MONORAM	U10	
—				—				——	SAME AS U10	U11	
—				—				——	SAME AS U1	U12	
—				—				——	↓	U13	
—				—				——	↓	U14	
—				—				——	↓	U15	
4				1				104214-G9	IC 8 BIT COUNTER	U16	
—				—				——	SAME AS U16	U17	
—				—				——	↓	U18	
—				—				——	↓	U19	
—				—				——	SAME AS U1	U20	
2				1				104392-G4	IC OCTAL LATCH	U21	
—				—				——	SAME AS U21	U22	
—				—				——	SAME AS U4	U23	
—				—				——	SAME AS U4	U24	

DRANETZ TECHNOLOGIES, INC.
EDISON NEW JERSEY U S A

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ASSEMBLY SHEET SIZE

SHEET 4 OF 6

* IN PART NO. COL. DENOTES VENDOR ITEM: SEE SOURCE CONTROL OR SPECIFICATION CONTROL DRAWING

LIST OF MATERIALS

DRAWING NUMBER LM112925-G1 B

QTY REQD G1	QTY REQD G2	QTY REQD G3	QTY REQD G4	U OF M	ITEM NO.	SIZE	CODE IDENT.	PART OR IDENTIFYING NO.	NOMENCLATURE OR DESCRIPTION	REF. DESIG.
–				–				———	SAME AS U1	U25
–				–				———	SAME AS U1	U26
1				1				112032-G1	IC μ PROC (10MHZ)	U27
1				1				SEE PROGRAM LISTING 105924	IC PROM	U28
1				1				SEE PROGRAM LISTING 105924	IC PROM	U29
2				1				104295-G2	IC RAM 8K x 8BIT CMOS	U30
–				–				———	SAME AS U30	U31
3				1				104271-G9	IC HEX INVERTER	U32
2								112047-G4	IC HEX INVERTER	U33
2				1				104392-G3	IC QUAD 2INP OR GATE	U34
1				1				104271-G3	IC 1 OF 8 DECODER	U35
2				1				104216-G9	IC 2 INP. QUAD NAND	U36
1				1				112007-G5	IC 2 TO 4 DECODER	U37
1				1				112007-G3	IC. HEX INVERTER	U38
–				–				———	SAME AS U32	U39
–				–				———	SAME AS U36	U40
2				1				112047-G1	IC QUAD 2INP AND GATE	U41
1				1				112047-G2	IC QUAD 2INP OR GATE	U42

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ASSEMBLY SHEET SIZE

SHEET 5

* IN PART NO. COL. DENOTES VENDOR ITEM: SEE SOURCE CONTROL OR SPECIFICATION CONTROL DRAWING

LIST OF MATERIALS

DRAWING NUMBER LM112925-G1 B

QTY REQD G1	QTY REQD G2	QTY REQD G3	QTY REQD G4	U OF M	ITEM NO.	SIZE	CODE IDENT.	PART OR IDENTIFYING NO.	NOMENCLATURE OR DESCRIPTION	REF. DESIG.
1				1				104381-G1	IC QUAD 2INP AND GATE	U43
1				1				104392-G2	IC DUAL D F.F. SET & RESET	U44
—				—				——	SAME AS U32	U45
2				1				112047-G3	IC QUAD 2INP NAND GATES	U46
—				—				——	SAME AS U41	U47
—				—				——	SAME AS U46	U48
—				—				——	SAME AS U33	U49
—				—				——	SAME AS U8	U50
—				—				——	SAME AS U34	U51
6				1				113225-G1	IC SOCKET 28 PIN	USED @ U10, U11, U28 U29-U31
1				1				113223-G1	IC SOCKET 68 PIN GRID ARRAY	USED @ U27

DRANETZ TECHNOLOGIES, INC.
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SIZE A | CODE IDENT. NO. 23207 | LM112925-G1

ASSEMBLY SHEET SIZE

SHEET 6 OF 6

PRELIMINARY

SEP 15

LM 112935-G1

* IN PART N OL. DENOTES VENDOR ITEM; SEE _ JRCE CONTROL OR SPECIFICATION CONTROL DRAWING

LIST OF MATERIALS

DRAWING N ER: LM 112935-G1 C

QTY REQD G1	QTY REQD G2	QTY REQD G3	QTY REQD G4	U OF M	ITEM NO.	SIZE	CODE IDENT.	PART OR IDENTIFYING NO.	NOMENCLATURE OR DESCRIPTION	REF. DESIG.	
REF				-				112935-G1	P.CKT BD XDUCER MONITOR ASSY		
1				1				112936	INCL MARKING		
REF				-				112937	DRILLING		
REF				-				112938	MASTER		
REF				-				112939	SOLDER MASK		
REF				-				112940-G1	SCHEMATIC		
1				1				113084-G1	REAR PANEL (INCL. MRK.)		
REF				-				113085-G1	S/M		
REF				-				113086-G1	ARTWORK		
2				1				104026-G5	CAP FXD MICA 20PF ±5% 500V	C1	
1				1				104026-G3	CAP FXD MICA 100 PF ±5% 500V	C2	
1				1				104114-G6	CAP FXD FILM 0.1 UF ±5% 30V	C3	
1				1				104114-G2	CAP FXD FILM 0.01 UF ±5% 100V	C4	
1				1				104114-G4	CAP FXD FILM 0.047 UF ±5% 50V	C5	

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SIZE A | CODE IDENT. NO. 23207 | LM 112935-G1

ASSEMBLY SHEET SIZE

SHEET 2 OF 13

U OF M CODE | 1 PIECE 6 PAIR 52 U. S. FLUID OZ. 55 U. S. GAL. | 5 SET 32 FEET 54 U. S. LIQUID QT. 68 POUND, AVDP

* IN PART I COL. DENOTES VENDOR ITEM: SEE SOURCE CONTROL OR SPECIFICATION CONTROL DRAWING

LIST OF MATERIALS

DRAWING NUMBER LM112935-G1 C

QTY REQD G1	QTY REQD G2	QTY REQD G3	QTY REQD G4	U OF M	ITEM NO.	SIZE	CODE IDENT.	PART OR IDENTIFYING NO.	NOMENCLATURE OR DESCRIPTION	REF. DESIG.
3				1				103209-G3	CAP FXD CER 0.47UF ±20% 50V	C6
—				—				—	SAME AS C6	C7
—				—				—	SAME AS C6	C8
11				1				103209-G1	CAP FXD CER 0.1UF ±20% 50V	C9
—				—				—	SAME AS C9	C10
—				—				—		C11
—				—				—		C12
—				—				—		C13
—				—				—		C14
—				—				—		C15
—				—				—		C16
—				—				—		C17
—				—				—		C18
—				—				—		C19
—				—				—	SAME AS C1	C20
9				6				104091	CAP MATCHED PR 43PF ±2% 500V	C21,C22
3				1				104080-G1	CAP FXD ELEC 47UF ±20% 50V	C23
—				—				—	SAME AS C23	C24

DRANETZ TECHNOLOGIES, INC.
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SIZE A | CODE IDENT. NO. 23207 | LM112935-G1

ASSEMBLY SHEET SIZE

SHEET 3 OF 3

U OF M CODE | 1 PIEC... 6 PAIR 52 U. S. FLUID OZ. 55 U. S. GAL.
5 SET 32 FEET 54 U. S. LIQUID QT. 69 POUND AVDP

* IN PART NO. COL. DENOTES VENDOR ITEM: SEE SOURCE CONTROL OR SPECIFICATION CONTROL DRAWING

LIST OF MATERIALS

DRAWING NUMBER LM112935-G1 C

QTY REQD G1	QTY REQD G2	QTY REQD G3	QTY REQD G4	U OF M	ITEM NO.	SIZE	CODE IDENT.	PART OR IDENTIFYING NO.	NOMENCLATURE OR DESCRIPTION	REF. DESIG.
—				—				—	SAME AS C23	C25
—				—				—	SAME AS C21, C22	C26A, C27A
—				—				—		C26B, C27B
—				—				—		C26C, C27C
—				—				—		C26D, C27D
—				—				—		C26E, C27E
—				—				—		C26F, C27F
—				—				—		C26G, C27G
—				—				—		C26H, C27H
8				1				113233-G1	FUSE 0.1A	F1A
—				-				—	SAME AS F1A	F1B
—				—				—		F1C
—				—				—		F1D

DRANETZ TECHNOLOGIES, INC.
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SIZE A | CODE IDENT. NO. 23207 | LM112935-G1

ASSEMBLY SHEET SIZE

SHEET 4 OF 13

U OF M CODE | 1 PIECE 5 SET 6 PAIR 32 FEET 52 U. S. FLUID OZ. 54 U. S. LIQUID QT. 55 U. S. GAL. 68 POUND, AVDP

OGLVE PRESS LANCASTER N Y

* IN PART NO. COL. DENOTES VENDOR ITEM: SEE SOURCE CONTROL OR SPECIFICATION CONTROL DRAWING

LIST OF MATERIALS

DRAWING NUME LM112935-G1 C

QTY REQD G1	QTY REQD G2	QTY REQD G3	QTY REQD G4	U OF M	ITEM NO.	SIZE	CODE IDENT.	PART OR IDENTIFYING NO.	NOMENCLATURE OR DESCRIPTION	REF. DESIG.	
—				—				—	SAME AS F1A	F1E	
—				—				—	↓	F1F	
—				—				—		F1G	
—				—				—		F1H	
2				1			AMP	87543-8	POST HEADER 8 DUAL POSITION	J1	←
—				—				—	SAME AS J1	J2	
1				1			AMP	87348-5	POST HEADER 5 POSITION	J3	
1				1				113217-G2	CONNECTOR	J4	
1				1				113218-G2	TERMINAL BLOCK 16 POS	XJ4	
8				1			AMP	87348-3	POST HEADER 3 POSITION	J5A-H	
8				1			PHOENIX	1401158 EB2-5	JUMPER	USED @ XJ4	
2				1				104635-G2	FERRITE BEAD	L1	
—				—				—	SAME AS L1	L2	
16				1				103580-G1	FERRITE BEAD	L3A	

DRANETZ TECHNOLOGIES, INC. EDISON, NEW JERSEY U S A

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ASSEMBLY SHEET SIZE

SHEET 5 OF 15

U OF M 1 PIECE 6 PAIR 52 U. S. FLUID OZ. 55 U. S. GAL. 8 POUND AVDP

* IN PART NO. COL. DENOTES VENDOR ITEM: SEE SOURCE CONTROL OR SPECIFICATION CONTROL DRAWING

LIST OF MATERIALS

DRAWING NUMBER LM 112935-G1 C

QTY REQD G1	QTY REQD G2	QTY REQD G3	QTY REQD G4	U OF M	ITEM NO.	SIZE	CODE IDENT.	PART OR IDENTIFYING NO.	NOMENCLATURE OR DESCRIPTION	REF. DESIG.
—				—				—	SAME AS L3A	L3B
—				—				—		L3C
—				—				—		L3D
—				—				—		L3E
—				—				—		L3F
—				—				—		L3G
—				—				—		L3H
—				—				—	SAME AS L3A	L4A
—				—				—		L4B
—				—				—		L4C
—				—				—		L4D
—				—				—		L4E
—				—				—		L4F
—				—				—		L4G
—				—				—		L4H
1				1			AMP	532505-1	CONN 96 PIN	P1

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SIZE A | CODE IDENT. NO. 23207 | LM 112935-G1

ASSEMBLY SHEET SIZE

SHEET 6 OF 13

U OF M | 1 PIECE 6 PAIR 52 U. S. FLUID OZ. 55 U. S. GAL. 68 POUND AVDP

* IN PART NO. COL. DENOTES VENDOR ITEM: SEE SOURCE CONTROL OR SPECIFICATION CONTROL DRAWING

LIST OF MATERIALS

DRAWING NUMBER: LM112935-G1 C

QTY REQD G1	QTY REQD G2	QTY REQD G3	QTY REQD G4	U OF M	ITEM NO.	SIZE	CODE IDENT.	PART OR IDENTIFYING NO.	NOMENCLATURE OR DESCRIPTION	REF. DESIG.	
2				1				104505	TRANSISTOR NPN	Q1	
–				–				—	SAME AS Q1	Q2	
1				1				RCR07GF103J	RES FXD COMP 10K ±5% 1/4W	R1	
1				1				RCR07GF202J	RES FXD COMP 2K ±5% 1/4W	R2	
1				1				RN55C6491F	RES FXD FILM 6.49K ±1% 1/10W	R3	
2				1				RN55C1582F	RES FXD FILM 15.8K ±1% 1/10W	R4	
1				1				104717-G5	RES VAR 100Ω ±10% 1/2W	R5	
1				1				104719-G7	RES VAR 100K ±10% 1/2W	R6	
5				1				RN55C1003F	RES FXD FILM 100K ±1% 1/10W	R7	
1				1				RN55C1000F	RES FXD FILM 100Ω ±1% 1/10W	R8	
2				1				RN55C1501F	RES FXD FILM 1.5K ±1% 1/10W	R9	

DRANETZ TECHNOLOGIES, INC.
EDISON, NEW JERSEY U.S.A.

PREPARED BY DATE
CHECKED BY DATE

SIZE A | CODE IDENT. NO. 23207 | LM112935-G1

ASSEMBLY SHEET SIZE

SHEET 7 OF 13

U OF M | 1 PIECE | 6 PAIR | 52 U. S. FLUID OZ. | 55 U. S. GAL. | 68 POUND, AVDP

OGLVIE PRESS LANCASTER N Y

* IN PART NO. COL. DENOTES VENDOR ITEM: SEE SOURCE CONTROL OR SPECIFICATION CONTROL DRAWING

LIST OF MATERIALS

DRAWING NUMBER LM 112935-G1 C

QTY REQD G1	QTY REQD G2	QTY REQD G3	QTY REQD G4	U OF M	ITEM NO.	SIZE	CODE IDENT.	PART OR IDENTIFYING NO.	NOMENCLATURE OR DESCRIPTION	REF. DESIG.
—				—				—	SAME AS R9	R10
2				1				104717-G8	RES VAR 100K ±10% 1/2W	R11
—				—				—	SAME AS R11	R12
2				1				RN55C2003F	RES FXD FILM 200K ±1% 1/10W	R13
1				1				RN55C2002F	RES FXD FILM 20K ±1% 1/10W	R14
2				1				104719-G2	RES VAR 5K ±10% 1/2W	R15
—				—				—	SAME AS R13	R16
—				—				—	SAME AS R7	R17
—				—				—	SAME AS R7	R18
17				1				104719-G3	RES VAR 10K ±10% 1/2W	R19
—				—				—	SAME AS R7	R20
—				—				—	SAME AS R7	R21
1				1				RN55C2211F	RES FXD FILM 2.21K ±1% 1/10W	R22
—				—				—	SAME AS R4	R23
1				1				RN55C1822F	RES FXD FILM 18.2K ±1% 1/10W	R24
17				1				RN55D2214F	RES FXD FILM 2.21M ±1% 1/10W	R25
—				—				—	SAME AS R15	R26
1				1				RN55C5492F	RES FXD FILM 54.9K ±1% 1/10W	R27

DRANETZ TECHNOLOGIES, INC.
EDISON NEW JERSEY U.S.A.

PREPARED BY DATE

CHECKED BY DATE

SIZE A | CODE IDENT. NO. 23207 | LM 112935-G1

ASSEMBLY SHEET SIZE

U OF M | 1 PIECE 6 PAIR 52 U. S. FLUID OZ. 55 U. S. GAL. 58 POUND, AVDP

* IN PART ITEM: SE. COL. DENOTES VENDOR SOURCE CONTROL OR SPECIFICATION CONTROL DRAWING

LIST OF MATERIALS

DRAWING NUMBER LM112935-G1 C

QTY REQD G1	QTY REQD G2	QTY REQD G3	QTY REQD G4	U OF M	ITEM NO.	SIZE	CODE IDENT.	PART OR IDENTIFYING NO.	NOMENCLATURE OR DESCRIPTION	REF. DESIG.
—				—				—	SAME AS R25	R28A
—				—				—		R28B
—				—				—		R28C
—				—				—		R28D
—				—				—		R28E
—				—				—		R28F
—				—				—		R28G
—				—				—		R28H
16				1				RN55G1103F	RES FXD FILM 110K ±1% ⅒W	R29A
—				—				—	SAME AS R29A	R29B
—				—				—		R29C
—				—				—		R29D
—				—				—		R29E
—				—				—		R29F
—				—				—		R29G
—				—				—		R29H
—				—				—	SAME AS R19	R30A
—				—				—	SAME AS R19	R30B

DRANETZ TECHNOLOGIES, INC.
EDISON, NEW JERSEY U.S.A.

PREPARED BY DATE

CHECKED BY DATE

SIZE A | CODE IDENT. NO. 23207 | LM112935-G1

ASSEMBLY SHEET SIZE

SHEET 9 OF 13

U OF M CODE | 1 F 5 S | 6 PAIR 32 FEET | 52 U. S. FLUID OZ. 54 U. S. LIQUID QT. | 55 U. S. GAL. 68 POUND, AVDP

OGILVIE PRESS LANCASTER, N. Y.

* IN PART NO. COL. DENOTES VENDOR ITEM: SEE SOURCE CONTROL OR SPECIFICATION CONTROL DRAWING

LIST OF MATERIALS

DRAWING NUMBF LM 112935-G1 C

QTY REQD G1	QTY REQD G2	QTY REQD G3	QTY REQD G4	U OF M	ITEM NO.	SIZE	CODE IDENT.	PART OR IDENTIFYING NO.	NOMENCLATURE OR DESCRIPTION	REF. DESIG.	
—				—				—	SAME AS R19	R30C	
—				—				—		R30D	
—				—				—		R30E	
—				—				—		R30F	
—				—				—		R30G	
—				—				—		R30H	
—				—				—	SAME AS R25	R31A	
—				—				—		R31B	
—				—				—		R31C	
—				—				—		R31D	
—				—				—		R31E	
—				—				—		R31F	
—				—				—		R31G	
—				—				—		R31H	
—				—				—	SAME AS R29A	R32A	
—				—				—		R32B	
—				—				—		R32C	
—				—				—		R32D	

DRANETZ TECHNOLOGIES, INC.
EDISON, NEW JERSEY U.S.A.

PREPARED BY DATE
CHECKED BY DATE

SIZE A | CODE IDENT. NO. 23207 | LM 112935-G1

ASSEMBLY SHEET SIZE | SHEET 10 OF 13

U OF M: 1 PIECE 6 PAIR 52 U. S. FLUID OZ. 55 U. S. GAL.

* IN PART NO. COL. DENOTES VENDOR ITEM: SEE SOURCE CONTROL OR SPECIFICATION CONTROL DRAWING

LIST OF MATERIALS

LM DRAWING NUMBER 112935-G1 C

QTY REQD G1	QTY REQD G2	QTY REQD G3	QTY REQD G4	U OF M	ITEM NO.	SIZE	CODE IDENT.	PART OR IDENTIFYING NO.	NOMENCLATURE OR DESCRIPTION	REF. DESIG.	
—				—				—	SAME AS R29A	R32E	
—				—				—		R32F	
—				—				—		R32G	
—				—				—		R32H	
—				—				—	SAME AS R19	R33A	
—				—				—		R33B	
—				—				—		R33C	
—				—				—		R33D	
—				—				—		R33E	
—				—				—		R33F	
—				—				—		R33G	
—				—				—		R33H	
8				1				104797-G5	RES WW 250Ω ±.1% 2.5W	R34A	
—				—				—	SAME AS R34A	R34B	
—				—				—		R34C	
—				—				—		R34D	
—				—				—		R34E	
—				—				—		R34F	

DRANETZ TECHNOLOGIES, INC.
EDISON, NEW JERSEY U.S.A.

PREPARED BY DATE

CHECKED BY DATE

SIZE A | CODE IDENT. NO. 23207 | LM 112935-G1

ASSEMBLY SHEET SIZE

SHEET 11 OF 13

OGLVE PRESS LANCASTER N Y

* IN PART NO. COL. DENOTES VENDOR ITEM: SEE SOURCE CONTROL OR SPECIFICATION CONTROL DRAWING

LIST OF MATERIALS

DRAWING NO. LM 112935-G1 C

QTY REQD G1	QTY REQD G2	QTY REQD G3	QTY REQD G4	U OF M	ITEM NO.	SIZE	CODE IDENT.	PART OR IDENTIFYING NO.	NOMENCLATURE OR DESCRIPTION	REF. DESIG.	
–				–				—	SAME AS R34A	R34G	
–				–				—	SAME AS R34A	R34H	
4				1				104733-G3	RES NETWORK SIP 100K	RN1	
–				–				—	SAME AS RN1	RN2	
–				–				—	"	RN3	
–				–				—	"	RN4	
3				1				104392-G7	IC OCTAL BUFFER	U1	
2				1				104381-G9	IC MAGNITUDE COMPARATOR	U2	
–				–				—	SAME AS U2	U3	
–				–				—	SAME AS U1	U4	
–				–				—	SAME AS U1	U5	
1				1				104392-G4	IC OCTAL LATCH	U6	
2				1				104392-G1	IC QUAD NAND GATE	U7	
1				1				112014-G5	IC DUAL ONESHOT	U8	
1				1				104392-G2	IC D-TYPE FLIP-FLOP	U9	

DRANETZ TECHNOLOGIES, INC.
EDISON, NEW JERSEY U.S.A.

PREPARED BY DATE

CHECKED BY DATE

SIZE A | CODE IDENT. NO. 23207 | LM 112935-G1

ASSEMBLY SHEET SIZE

SHEET 12 OF 13

U OF M | 1 PIECE 6 PAIR 52 U. S. FLUID OZ. 55 U. S. GAL. 68 POUND, AVDP

DIETZGEN PRESS LANGLEY PARK, N.Y.

* IN PART NO. COL. DENOTES VENDOR ITEM: SEE SOURCE CONTROL OR SPECIFICATION CONTROL DRAWING

LIST OF MATERIALS

DRAWING NUMBER LM 112935-G1 C

QTY REQD G1	QTY REQD G2	QTY REQD G3	QTY REQD G4	U OF M	ITEM NO.	SIZE	CODE IDENT.	PART OR IDENTIFYING NO.	NOMENCLATURE OR DESCRIPTION	REF. DESIG.
1				1				104271-G5	IC QUAD NOR GATE	U10
—				—				—	SAME AS U7	U11
1				1				104237-G1	IC 12-BIT AD CONVERTER	U12
1				1				104362	IC QUAD ANALOG SW	U13
3				1				104242-G1	IC 8:1 ANALOG MUX	U14
-				—				—	SAME AS U14	U15
—				—				—	SAME AS U14	U16
0				1				112028-G3	IC DC-DC CONV +/- 12VDC	U17
2				1				104264-G1	IC OP AMP	U18
—				—				—	SAME AS U18	U19
1				1				104236-G2	IC DUAL OP AMP	U20
1				1				110749-G8	IC SOCKET 28 PIN	USE @ U12
1				1				112921-G1	SHIELD	
1				1				113068-G2	BRACKET	
21				1			AMP	531220-1	2 POSITION SHUNT JUMPER	
1				1			AMP	87348-2	POST HEADER, 2-POS.	USED @ W3
2				1				110891-G2	PRE-FORMED JUMPER	USED @ W1, W2

DRANETZ TECHNOLOGIES, INC.
EDISON, NEW JERSEY U.S.A.

PREPARED BY DATE

CHECKED BY DATE

SIZE A | CODE IDENT. NO. 23207 | LM 112935-G1

ASSEMBLY SHEET SIZE

SHEET 13 OF 13

U OF M CODE | 1 PR 5 SET | 6 PAIR 32 FEET | 52 U. S. FLUID OZ. 54 U. S. LIQUID QT. | 55 U. S. GAL. 68 POUND, AVDP

OGLVIE PRESS LANCASTER N Y

PRELIMINARY

SEP 15

LM 112945-G1

(Page 1 of 7)

* IN PAR... OL. DENOTES VENDOR ITEM: SEE ...RCE CONTROL OR SPECIFICATION CONTROL DRAWING

LIST OF ...ATERIALS

DRAWING NU...ER LM112945-G1 B

QTY REQD G1	QTY REQD G2	QTY REQD G3	QTY REQD G4	U OF M	ITEM NO.	SIZE	CODE IDENT.	PART OR IDENTIFYING NO.	NOMENCLATURE OR DESCRIPTION	REF. DESIG.
REF				-				112945-G1	P.CKT BD. MEMORY BD ASSY.	
1				1				112946	INCL. MARKING	
REF				-				112947	DRILLING	
REF				-				112948	MASTER	
REF				-				112949	SOLDER MASK	
REF				-				112950-G1	SCHEMATIC	
16				1				110749-G8	IC SOCKET 28 PIN	USED @ U100 - U107 U110 - U117
9				1			AMP	531220-1	SHUNT JUMPER	
1				1				110731-G2	BATTERY, 3.6V NICAD "AA"	BT1

DRANETZ TECHNOLOGIES, INC.
EDISON, NEW JERSEY U.S.A.

PREPARED BY DATE

CHECKED BY DATE

SIZE A | CODE IDENT. NO. 23207 | LM112945-G1

ASSEMBLY SHEET SIZE | SHEET 2 OF 7

U OF M CODE | 1 PIECE 6 PAIR 52 U. S. FLUID OZ. 55 U. S. GAL. | 5 SET 32 FEET 54 U. S. LIQUID QT. 68 POUND, AVDP

DURYEA PRESS LANCASTER N Y

* IN PART NO. COL. DENOTES VENDOR ITEM: SEE SOURCE CONTROL OR SPECIFICATION CONTROL DRAWING

LIST OF MATERIALS

DRAWING NUMBER LM112945 G1 B

QTY REQD G1	QTY REQD G2	QTY REQD G3	QTY REQD G4	U OF M	ITEM NO.	SIZE	CODE IDENT.	PART OR IDENTIFYING NO.	NOMENCLATURE OR DESCRIPTION	REF. DESIG.	
									NOT USED	C1	
									↓	C2	
									↓	C3	
									↓	C4	
									↓	C5	
21				1				103209-G2	CAP FXD CER .22, ±10%, 50V	C6	
–				–				—	SAME AS C6	C7	
–				–				—	↓	C8	
–				–				—	↓	C9	
–				–				—	↓	C10	
2				1				104055-G1	CAP FXD TANT 15UF, ±10%, 20V	C11	
–				–				—	SAME AS C11	C12	
–				–				—	SAME AS C6	C13	
–				–				—	↓	C14	
–				–				—	↓	C15	
–				–				—	↓	C16	
–				–				—	↓	C17	

DRANETZ TECHNOLOGIES, INC.
EDISON, NEW JERSEY U.S.A.

PREPARED BY DATE

CHECKED BY DATE

SIZE A | CODE IDENT. NO. 23207 | LM 112945-G1

ASSEMBLY SHEET SIZE

SHEET 3 OF 7

U OF M | 1 | 6 PAIR | 52 U. S. FLUID OZ. | 55 U. S. GAL.
54 U. S. LIQUID QT. | 68 POUND, AVDP

OGLVE PRESS LANCASTER N Y

* IN PART NO. C . DENOTES VENDOR ITEM: SEE SOURCE CONTROL OR SPECIFICATION CONTROL DRAWING

LIST OF MATERIALS

DRAWING NUMBER LM 112945-C1 B

QTY REQD G1	QTY REQD G2	QTY REQD G3	QTY REQD G4	U OF M	ITEM NO.	SIZE	CODE IDENT.	PART OR IDENTIFYING NO.	NOMENCLATURE OR DESCRIPTION	REF. DESIG.	
—				—				—	SAME AS C6	C18	
—				—				—		C19	
—				—				—		C20	
—				—				—		C21	
—				—				—		C22	
—				—				—		C23	
—				—				—		C24	
—				—				—		C25	
—				—				—		C26	
—				—				—		C27	
—				—				—		C28	
3				1				101345	DIODE	CR1	
—				-				—	SAME AS CR1	CR2	
—				—				—	SAME AS CR1	CR3	
1				1				102899	DIODE	CR4	

DRANETZ TECHNOLOGIES, INC.
EDISON, NEW JERSEY U S A

PREPARED BY DATE

CHECKED BY DATE

SIZE A | CODE IDENT. NO. 23207 | LM 112945-G1

ASSEMBLY SHEET SIZE

SHEET 4 OF 7

U OF M CODE | 1 PIECE 6 PAIR 52 U. S. FLUID OZ. 55 U. S. GAL. | 1 SET 32 FEET 54 U. S. LIQUID QT. 68 POUND, AVDP

* IN PART NO. ... DENOTES VENDOR ITEM: SEE SOURCE CONTROL OR SPECIFICATION CONTROL DRAWING

LIST OF MATERIALS

DRAWING NUMBER LM112945 G1 B

QTY REQD G1	QTY REQD G2	QTY REQD G3	QTY REQD G4	U OF M	ITEM NO.	SIZE	CODE IDENT.	PART OR IDENTIFYING NO.	NOMENCLATURE OR DESCRIPTION	REF. DESIG.
									NOT USED	J1
1				1			AMP	87543-8	POST HEADER DUAL ROW 16 POSTS	J2
1				1			AMP	1-87543-0	POST HEADER DUAL ROW 20 POSTS	J3
									NOT USED	J4
1				1			AMP	87348-2	POST HEADER SINGLE ROW 2 POSTS	J5
1				1			AMP	532505-1	CONN. RT ANGLE .96 PIN	P1
1				1				104506	TRANSISTOR	Q1
1				1				RCR07GF302J	RES FXD COMP 3K, ±5%, ¼W	R1
									NOT USED	R2
1				1				RC32GF150J	RES FXD COMP 15Ω, ±5%, 1W	R3
2				1				104733-G2	RES NETWORK 47K 10 PIN SIP	RN1
–				–					SAME AS RN1	RN2

DRANETZ TECHNOLOGIES, INC.
EDISON, NEW JERSEY U.S.A.

PREPARED BY DATE
CHECKED BY DATE

SIZE A | CODE IDENT. NO. 23207 | LM112945-G1

ASSEMBLY SHEET SIZE | SHEET 5 OF 7

U OF M CODE | 1 P... 6 PAIR 52 U. S. FLUID OZ. 55 U. S. GAL.
5 SE... 32 FEET 54 U. S. LIQUID QT. 68 POUND, AVDP

OGLVE PRESS LANCASTER N Y

* IN PAR... COL. DENOTES VENDOR ITEM: SEE ...URCE CONTROL OR SPECIFICA...ION CONTROL DRAWING

LIST OF ...ATERIALS

DRAWING ...BER LM112945-G1 B

QTY REQD G1	QTY REQD G2	QTY REQD G3	QTY REQD G4	U OF M	ITEM NO.	SIZE	CODE IDENT.	PART OR IDENTIFYING NO.	NOMENCLATURE OR DESCRIPTION	REF. DESIG.
2				1				104271-G7	IC OCTAL TRANSCEIVER	U1
–				–				—	SAME AS U1	U2
3				1				104271-G2	IC OCTAL D-TYPE LATCH	U3
–				–				—	SAME AS U3	U4
–				–				—	SAME AS U3	U5
0				1				104271-G4	IC IC DECODER	U6
–				–				—	SAME AS U6	U7
–				–				—	↓	U8
–				–				—	↓	U9
1				1				104392-G3	IC QUAD OR GATE	U10
1				1				104271-G9	IC HEX INVERTER	U11
1				1				104381-G9	IC 8-BIT IDENTITY COMPARATOR	U12
1				1				112043-G1	IC BATTERY/POWERFAIL DET.	U13
1				1				104271-G3	IC DECODER	U14
16				1				112034-G4	I.C. CMOS RAM 32K x 8	U100
–				–				—	SAME AS U100	U101
–				–				—	SAME AS U100	U102

DRANETZ TECHNOLOGIES, INC.
EDISON, NEW JERSEY U.S.A.

PREPARED BY DATE

CHECKED BY DATE

SIZE A | CODE IDENT. NO. 23207 | LM112945-G1

ASSEMBLY SHEET SIZE

SHEET 6 OF 7

U OF M CODE | 1 PIECE 5 SET | 6 PAIR 32 FEET | 52 U. S. FLUID OZ. 54 U. S. LIQUID QT. | 55 U. S. GAL. 68 POUND, AVDP

OGILVIE PRESS LANCASTER N Y

* IN PART NO. COL. DENOTES VENDOR ITEM: SEE SOURCE CONTROL OR SPECIFICATION CONTROL DRAWING

LIST OF MATERIALS

DRAWING NUMBER LM112945-G1 B

QTY REQD G1	QTY REQD G2	QTY REQD G3	QTY REQD G4	U OF M	ITEM NO.	SIZE	CODE IDENT.	PART OR IDENTIFYING NO.	NOMENCLATURE OR DESCRIPTION	REF. DESIG.
–				–				—	SAME AS U100	U103
–				–				—		U104
–				–				—		U105
–				–				—		U106
–				–				—		U107
–				–				—	SAME AS U100	U110
–				–				—		U111
–				–				—		U112
–				–				—		U113
–				–				—		U114
–				–				—		U115
–				–				—		U116
–				–				—		U117

DRANETZ TECHNOLOGIES, INC.
EDISON, NEW JERSEY U S A

PREPARED BY DATE

CHECKED BY DATE

SIZE A | CODE IDENT. NO. 23207 | LM112945-G1

ASSEMBLY SHEET SIZE | SHEET 7 OF 7

U OF M CODE				
1 [illegible]	6 PAIR	52 U. S. FLUID OZ.	55 U. S. GAL.	
5 SS	32 FEET	54 U. S. LIQUID QT.	68 POUND, AVDP	

OGILVIE PRESS LANCASTER N Y

PRELIMINARY

SEP 15

LM 112955-G1

(Page 1 of 9)

* IN PART ... COL. DENOTES VENDOR ITEM: SEE SOURCE CONTROL OR SPECIFICATION CONTROL DRAWING

LIST OF MATERIALS

DRAWING NUMBER LM112955-G1 C

QTY REQD G1	QTY REQD G2	QTY REQD G3	QTY REQD G4	U OF M	ITEM NO.	SIZE	CODE IDENT.	PART OR IDENTIFYING NO.	NOMENCLATURE OR DESCRIPTION	REF. DESIG.
REF				-				112955-G1	P.CKT BD CPU BD ASSY.	
1				1				112956	INCL. MARKING	
REF				-				112957	DRILLING	
REF				-				112958	MASTER	
REF				-				112959	SOLDER MASK	
REF				-				112960-G1	SCHEMATIC	
1				1				110749-G9	IC SOCKET 40 PIN	USED @ U10
3				1				110749-G8	IC SOCKET 28 PIN	USED @ U25-U27
1				1				532505-1	96 PIN RIGHT ANGLE CONN	P1
1				1				113223-G1	IC SOCKET 68 PIN GRID ARRAY	USED @ U1
11				1				531220-1	SHUNT JUMPER	
2				1			H.H. SMITH	2671	FLAT WASHER	
									NOT USED	W1-W3
3				1				110891-G2	PREFORMED JUMPER	W4
—				—				—	SAME AS W4	W5
—				—				—	SAME AS W4	W6
1				1				113224-G1	IC/SOCKET 28 PIN	USED @ U28

DRANETZ TECHNOLOGIES, INC.
EDISON, NEW JERSEY U.S.A.

PREPARED BY DATE

CHECKED BY DATE

SIZE A | CODE IDENT. NO. 23207 | LM112955-G1

ASSEMBLY SHEET SIZE | SHEET 2 OF 9

U OF M CODE | 1 PIECE 5 SET | 6 PAIR 32 FEET | 52 U. S. FLUID OZ. 54 U. S. LIQUID QT. | 55 U. S. GAL. 68 POUND, AVDP

OGLVIE PRESS LANCASTER N Y

* IN PART ... COL. DENOTES VENDOR ITEM: S ...OURCE CONTROL OR SPECIFICATION CONTROL DRAWING

LIST O. MATERIALS

DRAWING ...MBER LM112955-G1 C

QTY REQD G1	QTY REQD G2	QTY REQD G3	QTY REQD G4	U OF M	ITEM NO.	SIZE	CODE IDENT.	PART OR IDENTIFYING NO.	NOMENCLATURE OR DESCRIPTION	REF. DESIG.
6				1				103209-G3	CAP FXD CERM .47, ±20%, 50V	C1
17				1				103209-G1	CAP FXD CERM .1 ±20% 50V	C2
—				—				—	SAME AS C2	C3
—				—				—		C4
—				—				—		C5
—				—				—		C6
—				—				—		C7
—				—				—		C8
—				—				—		C9
—				—				—		C10
—				—				—		C11
—				—				—		C12
—				—				—		C13
—				—				—		C14
—				—				—		C15
—				—				—		C16
—				—				—		C17

DRANETZ TECHNOLOGIES, INC.
EDISON, NEW JERSEY U.S.A.

PREPARED BY DATE

CHECKED BY DATE

SIZE A | CODE IDENT. NO. 23207 | LM112955-G1

ASSEMBLY SHEET SIZE

SHEET 3 OF 9

U OF M CODE | 1 PIECE 6 PAIR 52 U. S. FLUID OZ. 55 U. S. GAL. | 5 ... 32 FEET 54 U. S. LIQUID QT. 68 POUND, AVDP

OGLVIE PRESS LANCASTER N Y

* IN PART ITEM: SEE COL. DENOTES VENDOR SOURCE CONTROL OR SPECIFICATION CONTROL DRAWING

LIST OF MATERIALS

DRAWING NUMBER LM112955-G1 C

QTY REQD G1	QTY REQD G2	QTY REQD G3	QTY REQD G4	U OF M	ITEM NO.	SIZE	CODE IDENT.	PART OR IDENTIFYING NO.	NOMENCLATURE OR DESCRIPTION	REF. DESIG.
—				—				—	SAME AS C1	C18
—				—				—		C19
—				—				—		C20
—				—				—		C21
—				—				—		C22
1				1				104017-G8	CAP FXD MICA 68PF, ±5%, 500V	C23
—				—				—	SAME AS C2	C24
7				1				104412-G2	DIODE	CR1
—				—				—	SAME AS CR1	CR2
—				—				—		CR3
—				—				—		CR4
—				—				—		CR5
—				—				—		CR6
—				—				—		CR7

DRANETZ TECHNOLOGIES, INC.
EDISON, NEW JERSEY U S A

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SIZE A | CODE IDENT. NO. 23207 | LM112955-G1

ASSEMBLY SHEET SIZE

SHEET 4 OF 5

U OF M CODE | 1 PIECE 5 SET 6 PAIR 32 FEET 52 U. S. FLUID OZ. 54 U. S. LIQUID QT. 55 U. S. GAL. 68 POUND, AVDP

OGLVE PRESS LANCASTER N Y

* IN PART NC OL. DENOTES VENDOR ITEM: SEE S RCE CONTROL OR SPECIFICATION CONTROL DRAWING

LIST OF MATERIALS

DRAWING NU ER LM112955-G1 C

QTY REQD G1	QTY REQD G2	QTY REQD G3	QTY REQD G4	U OF M	ITEM NO.	SIZE	CODE IDENT.	PART OR IDENTIFYING NO.	NOMENCLATURE OR DESCRIPTION	REF. DESIG.
6				1			AMP	87543-8	POST HEADER DUAL ROW 16 POSTS	J1
–				–				—	SAME AS J1	J2
–				–				—		J3
–				–				—		J4
–				–				—		J5
–				–				—		J6
									NOT USED	J7
									NOT USED	J8
									NOT USED	J9
1				1			AMP	745397-1	CONN. 25 PIN "D" TYPE (FEMALE)	J10
1				1				110843-G1	CONN. 9 PIN "D" TYPE (FEMALE)	J11
4				1				104559-G1	TRANSISTOR	Q1
–				–				—	SAME AS Q1	Q2
–				–				—		Q3
–				–				—		Q4

DRANETZ TECHNOLOGIES, INC.
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SIZE A | CODE IDENT. NO. 23207 | LM112955-G1

ASSEMBLY SHEET SIZE

SHEET 5 OF 5

U OF M CODE | 1 PIEC 6 PAIR 52 U. S. FLUID OZ. 55 U. S. GAL.
5 SET 2 FEET 54 U. S. LIQUID QT. 68 POUND, AVDP

* IN PART ITEM: SEE SPECIFICA... COL. DENOTES VENDOR ...IRCE CONTROL OR ...ON CONTROL DRAWING

LIST OF MATERIALS

DRAWING NUMBER LM112955-G1 C

QTY REQD G1	QTY REQD G2	QTY REQD G3	QTY REQD G4	U OF M	ITEM NO.	SIZE	CODE IDENT.	PART OR IDENTIFYING NO.	NOMENCLATURE OR DESCRIPTION	REF. DESIG.
1				1				RCR07GF684J	RES FXD COMP. 680K, ±5%, 1/4W	R1
1				1				RCR07GF512J	RES FXD COMP 5.1K, ±5%, 1/4W	R2
1				1				RCR07GF103J	RES FXD COMP 10K, ±5%, 1/4W	R3
1				1				RCR07GF124J	RES FXD COMP 120K, ±5%, 1/4W	R4
1				1				RCR07GF104J	RES FXD COMP 100K, ±5%, 1/4W	R5
5				1				RCR07GF473J	RES FXD COMP 47K, ±5%, 1/4W	R6
									NOT USED	R7
1				1				RCR07GF102J	RES FXD COMP 1K, ±5%, 1/4W	R8
–				–				—	SAME AS R6	R9
–				–				—		R10
–				–				—		R11
–				–				—		R12
5				1				104733-G2	RES NETWORK 47K (10PIN SIP)	RN1
–				–				—	SAME AS RN1	RN2
–				–				—		RN3
–				–				—		RN4

DRANETZ TECHNOLOGIES, INC.
EDISON, NEW JERSEY U.S.A.

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SIZE A | CODE IDENT. NO. 23207 | LM112955-G1

ASSEMBLY SHEET SIZE

SHEET 6 OF 9

U OF M CODE | 1 PIECE 6 PAIR 52 U. S. FLUID OZ. 55 U. S. GAL. | 5 SET 32 FEET 54 U. S. LIQUID QT. 68 POUND, AVDP

* IN PART NO L. DENOTES VENDOR ITEM: SEE SOURCE CONTROL OR SPECIFICATION CONTROL DRAWING

LIST OF MATERIALS

DRAWING NUMBER LM112955-G1 C

QTY REQD G1	QTY REQD G2	QTY REQD G3	QTY REQD G4	U OF M	ITEM NO.	SIZE	CODE IDENT.	PART OR IDENTIFYING NO.	NOMENCLATURE OR DESCRIPTION	REF. DESIG.
–				–				——	SAME AS RN1	RN5
									NOT USED	RN6
1				1				104764	RES NETWORK 1K (16PIN DIP)	RN7
									NOT USED	RN8
1				1				104732-G8	RES NETWORK 1K (6 PIN SIP)	RN9
1				1				104732-G6	RES NETWORK 10K (6 PIN SIP)	RN10
1				1				104816-G2	SWITCH, PUSH BUTTON SPST MOM.	S1
1				1				112032-G1	IC CPU	U1
3				1				104271-G2	IC OCTAL "D" TYPE LATCH	U2
–				–				——	SAME AS U2	U3
–				–				——	SAME AS U2	U4
2				1				104271-G1	IC OCTAL BUS TRANSCIEVER	U5
–				–				——	SAME AS U5	U6
3				1				104381-G9	IC 8 BIT MAG COMP	U7
–				–				——	SAME AS U7	U8

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SIZE A | CODE IDENT. NO. 23207 | LM112955-G1

ASSEMBLY SHEET SIZE

SHEET 7 OF 9

U OF M CODE	1 PI.	6 PAIR	52 U. S. FLUID OZ.	55 U. S. GAL.
		32 FEET	54 U. S. LIQUID QT.	68 POUND, AVDP

* IN PART NO. COL. DENOTES VENDOR ITEM: SEE SOURCE CONTROL OR SPECIFICATION CONTROL DRAWING

LIST OF MATERIALS

DRAWING NUM LM112955-G1 C

QTY REQD G1	QTY REQD G2	QTY REQD G3	QTY REQD G4	U OF M	ITEM NO.	SIZE	CODE IDENT.	PART OR IDENTIFYING NO.	NOMENCLATURE OR DESCRIPTION	REF. DESIG.
2				1				104392-G2	IC DUAL 'D' TYPE FLIP FLOP	U9
1				1				112033-G1	IC DUAL VART	U10
2				1				104271-G6	IC DUAL ONE SHOT	U11
1				1				112007-G6	IC 4 BIT COUNTER	U12
—				—				—	SAME AS U9	U13
—				—				—	SAME AS U7	U14
1				1				104271-G4	IC DUAL 2 TO 4 LINE DEMUX	U15
2				1				104271-G9	IC HEX INVERTER	U16
—				—				—	SAME AS U16	U17
1				1				104392-G5	IC DUAL 4 INPUT NAND	U18
1				1				104392-G1	IC QUAD 2 INPUT NAND	U19
3				1				104392-G3	IC QUAD 2 INPUT OR	U20
—				—				—	SAME AS U20	U21
—				—				—	SAME AS U11	U22
1				1				112007-G4	IC PRIORITY ENCODER	U23
1				1				104271-G3	IC 3 TO 8 LINE DEMUX	U24
1				1				SEE PROGRAM LISTING 105924	IC PROM	U25
1				1				SEE PROGRAM LISTING 105924	IC PROM	U26

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SIZE A | CODE IDENT. NO. 23207 | LM112955-G1

ASSEMBLY SHEET SIZE

SHEET 8 OF 9

U OF M | 1 PIECE 6 PAIR 52 U. S. FLUID OZ. 55 U. S. GAL.
68 POUND, AVDP

OGILVIE PRESS LANCASTER N Y

* IN PART ITEM: SI . COL. DENOTES VENDOR OURCE CONTROL OR SPECIFICATION CONTROL DRAWING

LIST OF MATERIALS

DRAWING NUMBER LM112955-G1 C

QTY REQD G1	QTY REQD G2	QTY REQD G3	QTY REQD G4	U OF M	ITEM NO.	SIZE	CODE IDENT.	PART OR IDENTIFYING NO.	NOMENCLATURE OR DESCRIPTION	REF. DESIG.
2				1				112034-G4	IC 32Kx8 CMOS STATIC RAM	U27
—				—				—	SAME AS U27	U28
1				1				112007-G3	IC HEX INVERTER	U29
—				—				—	SAME AS U20	U30
									NOT USED	U31
									NOT USED	U32
4				1				104353	IC DUAL JFET OP AMP	U33
—				—				—	SAME AS U33	U34
—				—				—		U35
—				—				—		U36
3				1				104243-G3	IC DUAL OPTO-COUPLER	U37
—				—				—	SAME AS U37	U38
—				—				—	SAME AS U37	U39
									NOT USED	U40
2				1				104392-G7	IC OCTAL LINE DRIVER	U41
—				—				—	SAME AS U41	U42
1				1				110749-G5	I.C. SOCKET, 20 PIN	USED @ U8
1				1				110894-G2	CRYSTAL, 14.7456 MHZ	Y1

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SIZE A | CODE IDENT. NO. 23207 | LM112955-G1

ASSEMBLY SHEET SIZE

SHEET 9 OF 9

U OF M CODE | 1 PAIR 6 PAIR 52 U. S. FLUID OZ. 55 U. S. GAL.
5 32 FEET 54 U. S. LIQUID QT. 68 POUND, AVDP

OGLVE PRESS LANCASTER N Y

PRELIMINARY

SEP 15

LM 112964-G1

(Page 1 of 2)

* IN PART NO. COL. DENOTES VENDOR ITEM: SEE SOURCE CONTROL OR SPECIFICATION CONTROL DRAWING

LIST OF MATERIALS

DRAWING NUMBER: LM 112964-G1 B

QTY REQD G1	QTY REQD G2	QTY REQD G3	QTY REQD G4	U OF M	ITEM NO.	SIZE	CODE IDENT.	PART OR IDENTIFYING NO.	NOMENCLATURE OR DESCRIPTION	REF. DESIG.
REF				–				112964-G1	MAIN FRAME BATT CONV ASSY	
1				1				LM112965-G1	P.CKT. BD. CONVERTER LM ASSY	
REF				–				112974	WIRE LIST / J1 PRE-WIRE	
1				1				113216-G1	AC RECEPTACLE P.C. MOUNT	J1
3				1			AMATOM	9744-A-044D-17	HEX STANDOFF M/F 1/4 x 1-1/8	
1				1				112971-G1	SHIELD	
4				1			AMATOM	2704-18550-N116	WASHER, NYLON SHOULDER, #4	
1				1				112973-G1	INSULATOR	
2				1				112972-G1	L-BRACKET HEATSINK	
2				1			H.H. SMITH	1416-4	SOLDER LUG	

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SIZE A | CODE IDENT. NO. 23207 | LM 112964-G1

ASSEMBLY SHEET SIZE

SHEET 2 OF 2

U OF M CODE					
	1 PIECE	6 PAIR	52 U. S. FLUID OZ.	55 U. S. GAL.	
	5 SET	32 FEET	54 U. S. LIQUID QT.	68 POUND, AVDP	

PRELIMINARY

SEP 15

LM 112965-G1

(Page 1 of 14)

* IN PART NO. COL. DENOTES VENDOR ITEM: SEE SOURCE CONTROL OR SPECIFICATION CONTROL DRAWING

LIST OF MATERIALS

DRAWING NUMBER LM112965-G1 D

QTY REQD G1	QTY REQD G2	QTY REQD G3	QTY REQD G4	U OF M	ITEM NO.	SIZE	CODE IDENT.	PART OR IDENTIFYING NO.	NOMENCLATURE OR DESCRIPTION	REF. DESIG.	
REF								112965-G1	P.CKT BD CONVERTER		
1								112966	INCL MARKING		
REF								112967	DRILLING		
REF								112968	MASTER		
REF								112969	SOLDER MASK		
REF								112970-G1	SCHEMATIC		
1				1				104420-G2	DIODE BRIDGE	BR1	
1				1				104433-G4	DIODE BRIDGE	BR2	
1				1				104084-G1	CAP FXD MET PAPER .1UF ±20% 250V	C1	
1				1				104133-G2	CAP FXD ELEC 22UF $\pm^{50}_{10}$ % 450V	C2	
									NOT USED	C3	

DRANETZ TECHNOLOGIES, INC.
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SIZE A | CODE IDENT. NO. 23207 | LM112965-G1

ASSEMBLY SHEET SIZE

OGLVE PRESS LANCASTER N Y

* IN PART NO. COL. DENOTES VENDOR ITEM: SEE SOURCE CONTROL OR SPECIFICATION CONTROL DRAWING

LIST OF MATERIALS

DRAWING NUMBER LM112965-G1 D

QTY REQD G1	QTY REQD G2	QTY REQD G3	QTY REQD G4	U OF M	ITEM NO.	SIZE	CODE IDENT.	PART OR IDENTIFYING NO.	NOMENCLATURE OR DESCRIPTION	REF. DESIG.	
1				1				104103-G1	CAP FXD CER .01 uF ±20% 500V	C4	
10				1				103209-G1	CAP FXD CER .1UF ±20% 50V	C5	
									NOT USED	C6	
									NOT USED	C7	
–				–				—	SAME AS C5	C8	
2				1				104038-G1	CAP FXD CER 1000 PF ±10% 200V	C9	
–				–				—	SAME AS C9	C10	
–				–				—	SAME AS C5	C11	
									NOT USED	C12	
–				–				—	SAME AS C5	C13	
–				–				—	SAME AS C5	C14	
1				1				104039-G2	CAP FXD CER 3300 PF ±10% 200V	C15	
2				1				104075-G6	CAP FXD ELEC 3300 UF ±20% 25V	C16	
–				–				—	SAME AS C16	C17	
									NOT USED	C18	
										C19	
										C20	
										C21	

DRANETZ TECHNOLOGIES, INC.
EDI[illegible] NEW JERSEY U S A

PREPARED BY DATE
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SIZE A | CODE IDENT. NO. 23207 | LM112965-G1

ASSEMBLY SHEET SIZE | SHEET 3 [illegible] 14

OGLVE PRESS LANCASTER N Y

* IN PART NO. COL. DENOTES VENDOR ITEM; SEE SOURCE CONTROL OR SPECIFICATION CONTROL DRAWING

LIST OF MATERIALS

DRAWING NUMBER LM112965-G1 D

QTY REQD G1	QTY REQD G2	QTY REQD G3	QTY REQD G4	U OF M	ITEM NO.	SIZE	CODE IDENT.	PART OR IDENTIFYING NO.	NOMENCLATURE OR DESCRIPTION	REF. DESIG.	
1				1				104133-G1	CAP FXD ELEC 33UF $^{+50}_{-10}$% 250V	C22	
									NOT USED	C23	
–				–				–	SAME AS C5	C24	
4				1				104079-G1	CAP FXD ELEC 10UF $^{+50}_{-10}$% 35V	C25	
–				–				–	SAME AS C5	C26	
–				–				–	SAME AS C5	C27	
–				–				–	SAME AS C25	C28	
–				–				–	SAME AS C25	C29	
									NOT USED	C30	
									NOT USED	C31	
1				1				104100-G1	CAP FXD ELEC 100 UF $^{+30}_{-10}$ % 50V	C32	
1				1				104019-G3	CAP FXD MICA 300 PF ±5% 500V	C33	
									NOT USED	C34	
–				–				–	SAME AS C5	C35	
–				–				–	SAME AS C5	C36	
1				1				104132-G1	CAP FXD ELEC 470 uF ±20% 25V	C37	
–				–				–	SAME AS C25	C38	

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ASSEMBLY SHEET SIZE

OGLVIE PRESS LANCASTER, N.Y.

* IN PART NO. COL. DENOTES VENDOR ITEM: SEE SOURCE CONTROL OR SPECIFICATION CONTROL DRAWING

LIST OF MATERIALS

DRAWING NUMBER LM 112965-G1 D

QTY REQD G1	QTY REQD G2	QTY REQD G3	QTY REQD G4	U OF M	ITEM NO.	SIZE	CODE IDENT.	PART OR IDENTIFYING NO.	NOMENCLATURE OR DESCRIPTION	REF. DESIG.	
									NOT USED	CR1	
									↓	CR2	
									↓	CR3	
									↓	CR4	
2				1				104443-G1	DIODE, RECTIFIER	CR5	
—				—				—	SAME AS CR5	CR6	
									NOT USED	CR7	
									↓	CR8	
									↓	CR9	
									↓	CR10	
5				1				104412-G2	DIODE, SWITCHING H.S.	CR11	
4				1				104411-G1	DIODE, PWR RECTIFIER	CR12	
—				—				—	SAME AS CR12	CR13	
—				—				—	SAME AS CR12	CR14	
—				—				—	SAME AS CR12	CR15	
—				—				—	SAME AS CR11	CR16	
1				1				104424-G2	DIODE, ZENER	CR17	
—				—				—	SAME AS CR11	CR18	

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SIZE A | CODE IDENT. NO. 23207 | LM 112965-G1

ASSEMBLY SHEET SIZE

SHEET 5 [illegible] 14

OGLVE PRESS LANCASTER N Y

* IN PART NO. COL. DENOTES VENDOR ITEM: SEE SOURCE CONTROL OR SPECIFICATION CONTROL DRAWING

LIST OF MATERIALS

DRAWING NUMBER LM 112965-G1 D

QTY REQD G1	QTY REQD G2	QTY REQD G3	QTY REQD G4	U OF M	ITEM NO.	SIZE	CODE IDENT.	PART OR IDENTIFYING NO.	NOMENCLATURE OR DESCRIPTION	REF. DESIG.	
—				—				—	SAME AS CR11	CR19	
3				1				104405-G2	DIODE, RECTIFIER	CR20	
									NOT USED	CR21	
									NOT USED	CR22	
—				—				—	SAME AS CR11	CR23	
—				—				—	SAME AS CR20	CR24	
—				—				—	SAME AS CR20	CR25	
1				1				104400-G4	DIODE, ZENER 16 V.	CR26	
2				1				104438-G1	LED, RED	DS1	
—				—				—	SAME AS DS1	DS2	
1				1				113204-G1	FUSE SLOW BLOW 1½A	F1	
1				1				110839-G1	FUSE HOLDER PC MOUNT	USED @ F1	
1				1				107523-G1	FUSE CARRIER	USED @ F1	
1				1				113205-G2	FUSE SLOW BLOW 15A	F2	
2				1			BUSSMANN	1A1119-05	FUSE CLIPS	USED @ F2	

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ASSEMBLY SHEET SIZE

SHEET 6 OF 14

OGLEVIE PRESS LANCASTER N Y

* IN PART NO. COL. DENOTES VENDOR ITEM: SEE SOURCE CONTROL OR SPECIFICATION CONTROL DRAWING

LIST OF MATERIALS

DRAWING NUMBER LM112965-G1 D

QTY REQD G1	QTY REQD G2	QTY REQD G3	QTY REQD G4	U OF M	ITEM NO.	SIZE	CODE IDENT.	PART OR IDENTIFYING NO.	NOMENCLATURE OR DESCRIPTION	REF. DESIG.	
1				1			AMP	87348-2	PIN HEADER 2 POS.	J1	
1				1			AMP	350428-1	PIN HEADER 2 POS	J2	
1				1			AMP	531796-1	CONN EUROCARD INVERSE SEX	J3	
1				1			AMP	640456-2	POST HEADER 2 POS	J4	
1				1			AMP	643093-1	SIP STRIP CONN. 8 POS.	J6	
1				1			AMP	88665-7	FLEX CABLE ASSY. 8 POS, 2"LG	P6	
2				1				104674-G1	INDUCTOR 120 UH	L1A	
—				—				—	SAME AS L1A	L1B	
2				1				104635-G1	FERRITE BEAD	L2	
—				—				—	SAME AS L2	L3	

DRANETZ TECHNOLOGIES, INC. EDISON, NEW JERSEY U.S.A.

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ASSEMBLY SHEET SIZE

SIZE A | CODE IDENT. NO. 23207 | LM112965-G1

SHEET 7 14

OGLVIE PRESS LANCASTER N Y

* IN PART NO. COL. DENOTES VENDOR ITEM: SEE SOURCE CONTROL OR SPECIFICATION CONTROL DRAWING

LIST OF MATERIALS

DRAWING NUMBER LM 112965-G1 D

QTY REQD G1	QTY REQD G2	QTY REQD G3	QTY REQD G4	U OF M	ITEM NO.	SIZE	CODE IDENT.	PART OR IDENTIFYING NO.	NOMENCLATURE OR DESCRIPTION	REF. DESIG.	
4				1				104505	TRANSISTOR	Q1	
3				1				104559-G1	FET	Q2	
—				—				—	SAME AS Q2	Q3	
—				—				—	SAME AS Q2	Q4	
4				1				104442-G2	FET, POWER	Q5	
—				—				—	SAME AS Q5	Q6	
—				—				—	SAME AS Q5	Q7	
—				—				—	SAME AS Q5	Q8	
3				1				104552-G1	TRANSISTOR	Q9	
—				—				—	SAME AS Q1	Q10	
—				—				—	SAME AS Q9	Q11	
1				1				104551-G1	TRANSISTOR	Q12	
									NOT USED	Q13	
—				—				—	SAME AS Q9	Q14	

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ASSEMBLY SHEET SIZE

OGILVIE PRESS LANCASTER, N Y

* IN PART NO. COL. DENOTES VENDOR ITEM: SEE SOURCE CONTROL OR SPECIFICATION CONTROL DRAWING

LIST OF MATERIALS

DRAWING NUMBER LM 112965-G1 D

QTY REQD G1	QTY REQD G2	QTY REQD G3	QTY REQD G4	U OF M	ITEM NO.	SIZE	CODE IDENT.	PART OR IDENTIFYING NO.	NOMENCLATURE OR DESCRIPTION	REF. DESIG.	
—				—				—	SAME AS Q1	Q15	
—				—				—	SAME AS Q1	Q16	
1				1				104788	ZNR TRANS/SURGE ABS	R1	
1				1				110712-G1	THERMISTOR 40Ω ±20% 1.5A	R2	
1				1				RCR32G204J	RES FXD COMP 200K ±5% 1W	R3	
									NOT USED	R4	
2				1				RCR07G106J	RES FXD COMP 10M ±5% 1/4W	R5	
									NOT USED	R6	
15				1				RCR07G104J	RES FXD COMP 100K ±5% 1/4W	R7	
—				—				—	SAME AS R5	R8	
—				—				—	SAME AS R7	R9	
1				1				RCR07G364J	RES FXD COMP 360K ±5% 1/4W	R10	
2				1				104719-G5	POT 50K ±10% 1/2W	R11	
—				—				—	SAME AS R7	R12	
9				1				RCR07G103J	RES FXD COMP 10K ±5% 1/4W	R13	
—				—				—	SAME AS R13	R14	

DRANETZ TECHNOLOGIES, INC. EDISON, NEW JERSEY U.S.A.

PREPARED BY DATE

CHECKED BY DATE

SIZE A | CODE IDENT. NO. 23207 | LM 112965-G1

ASSEMBLY SHEET SIZE

SHEET 9 OF 14

OGLVE PRESS LANCASTER N Y

* IN PART NO. COL. DENOTES VENDOR ITEM: SEE SOURCE CONTROL OR SPECIFICATION CONTROL DRAWING

LIST OF MATERIALS

DRAWING NUMBER LM 112965-G1 D

QTY REQD G1	QTY REQD G2	QTY REQD G3	QTY REQD G4	U OF M	ITEM NO.	SIZE	CODE IDENT.	PART OR IDENTIFYING NO.	NOMENCLATURE OR DESCRIPTION	REF. DESIG.	
—				—				—	SAME AS R13	R15	
—				—				—	SAME AS R7	R16	
4				1				RCR07G102J	RES FXD COMP 1K ±5% 1/4W	R17	
—				—				—	SAME AS R7	R18	
—				—				—	SAME AS R17	R19	
—				—				—	SAME AS R7	R20	
									NOT USED	R21	
1				1				104719-G4	POT 20K ±10% 1/2 W	R22	
1				1				RCR07G913J	RES FXD COMP 91K ±5% 1/4W	R23	
1				1				RCR07G184J	RES FXD COMP 180K ±5% 1/4W	R24	
1				1				RCR07G623J	RES FXD COMP 62K ±5% 1/4W	R25	
—				—				—	SAME AS R13	R26	
—				—				—	SAME AS R13	R27	
2				1				RCR07G221J	RES FXD COMP 220Ω ±5% 1/4W	R28	
—				—				—	SAME AS R28	R29	
1				1				RCR07G242J	RES FXD COMP 2.4K ±5% 1/4W	R30	
2				1				RCR07G392J	RES FXD COMP 3.9K ±5% 1/4W	R31	
1				1				112357-G1	RES FXD WW .005Ω ±5% 5W	R32	

DRANETZ TECHNOLOGIES, INC.
EDISON, NEW JERSEY U.S.A.

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SIZE A | CODE IDENT. NO. 23207 | LM 112965-G1

ASSEMBLY SHEET SIZE

SHEET 10 OF 14

OGILVIE PRESS LANCASTER N Y

* IN PART NO. COL. DENOTES VENDOR ITEM: SEE SOURCE CONTROL OR SPECIFICATION CONTROL DRAWING

LIST OF MATERIALS

DRAWING NUMBER LM 112965-G1 D

QTY REQD G1	QTY REQD G2	QTY REQD G3	QTY REQD G4	U OF M	ITEM NO.	SIZE	CODE IDENT.	PART OR IDENTIFYING NO.	NOMENCLATURE OR DESCRIPTION	REF. DESIG.	
4				1				RCR07G470J	RES FXD COMP 47Ω 1/4W. ±5%	R33	
—				—				—	SAME AS R33	R34	
—				—				—	SAME AS R17	R35	
—				—				—	SAME AS R17	R36	
—				—				—	SAME AS R33	R37	
—				—				—	SAME AS R33	R38	
1				1				RCR20G104J	RES FXD COMP 100K ±5% 1/2W	R39	
1				1				RN55C5492F	RES FXD FLM 54.9K ±1% 1/10W	R40	
1				1				104719-G3	POT 10K ±10% 1/2W	R41	
1				1				RN55C7501F	RES FXD FLM 7.5K ±1% 1/10W	R42	
1				1				RN55C2492F	RES FXD FLM 24.9K ±1% 1/10W	R43	
1				1				RCR07G162F	RES FXD COMP 1.6K ±5% 1/4W	R44	
—				—				—	SAME AS R13	R45	
—				—				—	SAME AS R7	R46	
—				—				—	SAME AS R31	R47	
—				—				—	SAME AS R7	R48	
1				1				RCR07G183J	RES FXD COMP 18K ±5% 1/4W	R49	
2				1				RN55C1003F	RES FXD FLM 100K ±1% 1/10W	R50	
—				—				—	SAME AS R50	R51	

DRANETZ TECHNOLOGIES, INC. EDISON, NEW JERSEY U.S.A.

PREPARED BY DATE

CHECKED BY DATE

SIZE A | CODE IDENT. NO. 23207 | LM 112965-G1

ASSEMBLY SHEET SIZE

SHEET 11 OF 14

OGLVE PRESS LANCASTER N Y

* IN PART NO. COL. DENOTES VENDOR ITEM: SEE SOURCE CONTROL OR SPECIFICATION CONTROL DRAWING

LIST OF MATERIALS

DRAWING NUMBER LM 112965-G1 D

QTY REQD G1	QTY REQD G2	QTY REQD G3	QTY REQD G4	U OF M	ITEM NO.	SIZE	CODE IDENT.	PART OR IDENTIFYING NO.	NOMENCLATURE OR DESCRIPTION	REF. DESIG.	
1				1				RCR07G105J	RES FXD COMP 1M ±5% 1/4W.	R52	
2				1				RCR07G202J	RES FXD COMP 2K ±5% 1/4W	R53	
—				—				—	SAME AS R13	R54	
1				1				RCR07G473J	RES FXD COMP 47K ±5% 1/4W	R55	
1				1				112354-G2	RES FXD WW 25Ω ±5% 5W	R56	
									NOT USED	R57	
									↓	R58	
									↓	R59	
									↓	R60	
									↓	R61	
—				—				—	SAME AS R7	R62	
—				—				—	SAME AS R13	R63	
—				—				—	SAME AS R53	R64	
—				—				—	SAME AS R7	R65	
—				—				—	↓	R66	
—				—				—	↓	R67	
—				—				—	↓	R68	
—				—				—	↓	R69	

DRANETZ TECHNOLOGIES, INC.
EDISON, NEW JERSEY U S A

PREPARED BY DATE

CHECKED BY DATE

SIZE A | CODE IDENT. NO. 23207 | LM 112965-G1

ASSEMBLY SHEET SIZE

SHEET 12 OF 14

OGLVIE PRESS LANCASTER N Y

* IN PART NO. COL. DENOTES VENDOR ITEM: SEE SOURCE CONTROL OR SPECIFICATION CONTROL DRAWING

LIST OF MATERIALS

DRAWING NUMBER LM 112965-G1 D

QTY REQD G1	QTY REQD G2	QTY REQD G3	QTY REQD G4	U OF M	ITEM NO.	SIZE	CODE IDENT.	PART OR IDENTIFYING NO.	NOMENCLATURE OR DESCRIPTION	REF. DESIG.	
—				—				—	SAME AS R13	R70	
—				—				—	SAME AS R7	R71	
—				—				—	SAME AS R11	R72	
2				1				104740	RES NETWORK	RN1	
—				—				—	SAME AS RN1	RN2	
1				1				104875	SWITCH, LEVER, 3PDT	S1	
1								104675	TRANSFORMER	T1	
2				1				104236-G1	I.C. DUAL OP-AMP	U1	
1				1				104231-G5	I.C. DUAL MULTIVIBRATOR	U2	
1				1				104200-G1	I.C. QUAD 2 INP NOR	U3	
1				1				104201-G1	I.C. DUAL D F.F.	U4	

DRANETZ TECHNOLOGIES, INC.
EDISON, NEW JERSEY U.S.A.

PREPARED BY DATE
CHECKED BY DATE

SIZE A | CODE IDENT. NO. 23207 | LM 112965-G1

ASSEMBLY SHEET SIZE

SHEET 13 OF 14

OGLVE PRESS LANCASTER N Y

* IN PART NO. COL. DENOTES VENDOR ITEM: SEE SOURCE CONTROL OR SPECIFICATION CONTROL DRAWING

LIST OF MATERIALS

DRAWING NUMBER LM 112965-G1 D

QTY REQD G1	QTY REQD G2	QTY REQD G3	QTY REQD G4	U OF M	ITEM NO.	SIZE	CODE IDENT.	PART OR IDENTIFYING NO.	NOMENCLATURE OR DESCRIPTION	REF. DESIG.	
–				–				–	SAME AS U1	U5	
1				1				112041-G1	I.C. ADV REG PULSE WIDTH MOD	U6	
1				1				104323	I.C. QUAD COMP	U7	
1				1				112042-G1	I.C. SWITCHING REG	U8	
									NOT USED	U9	
1				1			PANDUIT	PLT1M	TY-RAP	USED @ C2	
1				1			PANDUIT	PLT2M	TY-RAP	USED @ C16 & C17	
1				1			AMP	88674-2	FLEX CABLE, 3 POS.		
1				1				112974	WIRE JUMPER LIST		
1				1				104923	TRANSISTOR, MTG PAD	USED @ Q14	

DRANETZ TECHNOLOGIES, INC.
EDISON, NEW JERSEY U.S.A.

PREPARED BY DATE

CHECKED BY DATE

SIZE A | CODE IDENT. NO. 23207 | LM 112965-G1

ASSEMBLY SHEET SIZE

SHEET 14 OF 14

OGILVIE PRESS LANCASTER, N.Y.

PRELIMINARY

SEP 15

LM 112885-G1

(Page 1 of 3)

* IN PAR). COL. DENOTES VENDOR ITEM: S. SOURCE CONTROL OR SPECIFICATION CONTROL DRAWING

LIST O. MATERIALS

DRAWING MBER LM112885-G1 B

QTY REQD G1	QTY REQD G2	QTY REQD G3	QTY REQD G4	U OF M	ITEM NO.	SIZE	CODE IDENT.	PART OR IDENTIFYING NO.	NOMENCLATURE OR DESCRIPTION	REF. DESIG.
REF				-				112885-G1	P. CKT BD. FRONT MOTHERBD. ASSY.	
1				1				112886	INCL. MARKING	
REF				-				112887	DRILLING	
REF				-				112888	MASTER	
REF				-				112889	SOLDER MASK	
REF				-				112890-G1	SCHEMATIC	
3				1			AMP	532504-1	CONN., EUROCARD TYPE C (96 PIN)	XA1
1				1			ROBINSON NUGENT	RNE 96CS-PS-TG	CONN. EUROCARD 96 PIN	XA2
									NOT USED	XA3
										XA4
										XA5
—				—				—	SAME AS XA1	XA6

DRANETZ TECHNOLOGIES, INC.
EDISON, NEW JERSEY U S A

PREPARED BY DATE

CHECKED BY DATE

SIZE A | CODE IDENT. NO. 23207 | LM 112885-G1

ASSEMBLY SHEET SIZE

SHEET 2 OF 3

U OF M CODE | 1 PIECE 6 PAIR 52 U. S. FLUID OZ. 55 U. S. GAL. | 5 SET 32 FEET 54 U. S. LIQUID QT. 68 POUND, AVDP

OGLVE PRESS LANCASTER N Y

* IN PA IO. COL. DENOTES VENDOR
ITEM: SOURCE CONTROL OR
SPECIFICATION CONTROL DRAWING

LIST C. MATERIALS

DRAWING NUMBER: LM112885-G1 B

QTY REQD G1	QTY REQD G2	QTY REQD G3	QTY REQD G4	U OF M	ITEM NO.	SIZE	CODE IDENT.	PART OR IDENTIFYING NO.	NOMENCLATURE OR DESCRIPTION	REF. DESIG.
									NOT USED	XA7
										XA8
										XA9
										XA10
										XA11
										XA12
—				—				—	SAME AS XA1	XA13

DRANETZ TECHNOLOGIES, INC.
EDISON, NEW JERSEY U.S.A.

PREPARED BY DATE
CHECKED BY DATE

SIZE A | CODE IDENT. NO. 23207 | LM 112885-G1

ASSEMBLY SHEET SIZE | SHEET 3 OF 3

U OF M CODE				
[illegible]	CE	6 PAIR	52 U. S. FLUID OZ.	55 U. S. GAL.
[illegible]		32 FEET	54 U. S. LIQUID QT.	68 POUND, AVDP

OGLVIE PRESS LANCASTER N Y

PRELIMINARY

SEP 15

LM 112895-G1

(Page 1 of 3)

* IN PA[illegible]D. COL. DENOTES VENDOR ITEM: S SOURCE CONTROL OR SPECIFICATION CONTROL DRAWING

LIST C. MATERIALS

DRAWING NUMBER LM112875-G1 A

QTY REQD G1	QTY REQD G2	QTY REQD G3	QTY REQD G4	U OF M	ITEM NO.	SIZE	CODE IDENT.	PART OR IDENTIFYING NO.	NOMENCLATURE OR DESCRIPTION	REF. DESIG.
REF				-				112895-G1	P.CKT BD REAR MOTHER BD ASSY	
1				1				112896	INCL. MARKING	
REF				-				112897	DRILLING	
REF				-				112898	MASTER	
REF				-				112899	SOLDER MASK	
REF				-				112900-G1	SCHEMATIC	
1				1			ROBINSON NUGENT	RNE-96CS-PS-TG	CONN. 96 PIN (FEMALE)	J1
1				1			AMP	1-640388-8	POST HEADER, .156 CTR., 18 PIN	J2
8				1				104735-G1	RES NETWORK 330/470Ω	RN1
–				–				—	SAME AS RN1	RN2
–				–				—		RN3
–				–				—		RN4
–				–				—		RN5
–				—				—		RN6

DRANETZ TECHNOLOGIES, INC.
EDISON, NEW JERSEY U.S.A.

PREPARED BY DATE

CHECKED BY DATE

SIZE A | CODE IDENT. NO. 23207 | LM112895-G1

ASSEMBLY SHEET SIZE

SHEET 2 OF 3

U OF M CODE | 1 PIECE 5 SET | 6 PAIR 32 FEET | 52 U. S. FLUID OZ. 54 U. S. LIQUID QT. | 55 U. S. GAL. 68 POUND, AVDP

OGLVE PRESS LANCASTER N Y

* IN PA NO. COL. DENOTES VENDOR ITEM: E SOURCE CONTROL OR SPECIFICATION CONTROL DRAWING

LIST OF MATERIALS

DRAWING NUMBER LM112895-G1 A

QTY REQD G1	QTY REQD G2	QTY REQD G3	QTY REQD G4	U OF M	ITEM NO.	SIZE	CODE IDENT.	PART OR IDENTIFYING NO.	NOMENCLATURE OR DESCRIPTION	REF. DESIG.	
—				—				—	SAME AS RN1	RN7	
—				—				—	SAME AS RN1	RN8	
7				1			AMP	532523-1	CONN. 96 PIN (MALE)	XA14	
									NOT USED	XA15	
—				—				—	SAME AS XA14	XA16	
—				—					↓	XA17	
—				—					↓	XA18	
									NOT USED	XA19	
—				—				—	SAME AS XA14	XA20	
—				—				—	SAME AS XA14	XA21	
4				1			AMP	532504-1	CONN. 96 PIN (FEMALE)	XA22	
—				—				—	SAME AS XA22	XA23	
—				—				—	↓	XA24	
—				—				—	↓	XA25	
—				—				—	SAME AS XA14	XA26	

DRANETZ TECHNOLOGIES, INC.
EDISON, NEW JERSEY U.S.A.

PREPARED BY DATE

CHECKED BY DATE

SIZE A | CODE IDENT. NO. 23207 | LM112895-G1

ASSEMBLY SHEET SIZE

SHEET 3 OF 3

U OF M CODE				
	CE	6 PAIR	52 U. S. FLUID OZ.	55 U. S. GAL.
	T	32 FEET	54 U. S. LIQUID QT.	68 POUND, AVDP

DOLVE PRESS LANCASTER N Y

PRELIMINARY

SEP 15

LM 113050-G1

(Page 1 of 3)

* IN PART NO. COL. DENOTES VENDOR ITEM: SOURCE CONTROL OR SPECIFICATION CONTROL DRAWING

LIST OF MATERIALS

DRAWING NUMBER LM113050-G1 B

QTY REQD G1	QTY REQD G2	QTY REQD G3	QTY REQD G4	U OF M	ITEM NO.	SIZE	CODE IDENT.	PART OR IDENTIFYING NO.	NOMENCLATURE OR DESCRIPTION	REF. DESIG.
REF				-				113050-G1	KEYBOARD MAIN FRAME	
1				1				113251-G1	KEYBOARD	A1
1				1				LM113075-G1	P.CKT BD DECODING	A2
1				1				113052-G1	LATCH BRACKET	
1				1				113053-G1	KEYBOARD BEZEL (INCL MRK)	
1				1				113056-G1	KEYBOARD SUPPORT BRACKET	
1				1				113057-G1	SHAFT	
1				1				113058-G1	FISHPAPER OUTLINE	
3				1			WECKESSER	BLK-PC-12	PRESS CLIP, ADHESIVE BACKED	
1				1				LM112824-G1	MODULAR PLUG CABLE ASSY	
6				1			SCHROFF	60402-015	SCREW, METRIC, BLK, M4x6mm, PAN HD, SLTD	
5				1			AMATOM	8214-A-0440-17	STANDOFF 1/4 HEX x 7/16 LG	
1				1			AMATOM	8213-A-0440-17	STANDOFF 1/4 HEX x 3/8 LG	
1				1			AMATOM	8216-A-0440-17	STANDOFF 1/4 HEX x 9/16" LG.	
2				1			AMATOM	9222-A115-17	SPACER 1/4 RD x 1/8 LG	
1				1			SOUTHCO	E4-10-102-10	TOUCH LATCH ASSY	
.16				32			3M	4508	FOAM TAPE 1 7/8 x 3/8 x 1/8 THK	

DRANETZ TECHNOLOGIES, INC.
EDISON, NEW JERSEY U.S.A.

PREPARED BY DATE

CHECKED BY DATE

SIZE A | CODE IDENT. NO. 23207 | LM 113050-G1

ASSEMBLY SHEET SIZE

SHEET 2 OF 3

U OF M CODE | 1 PIECE 5 SET | 6 PAIR 32 FEET | 52 U. S. FLUID OZ. 54 U. S. LIQUID QT. | 55 U. S. GAL. 68 POUND, AVDP

OGILVIE PRESS LANCASTER N Y

* IN PART NO. COL. DENOTES VENDOR ITEM: SOURCE CONTROL OR SPECIFICATION CONTROL DRAWING

LIST OF MATERIALS

DRAWING NUMBER LM113050-G1 B

QTY REQD G1	QTY REQD G2	QTY REQD G3	QTY REQD G4	U OF M	ITEM NO.	SIZE	CODE IDENT.	PART OR IDENTIFYING NO.	NOMENCLATURE OR DESCRIPTION	REF. DESIG.
4				1			3M	SJ5012	RUBBER BUMPER	
2				1			AMATOM	19158-A-0470-17	STANDOFF 6MM HEX x 11MM LG	
4				1			H.H. SMITH	1416-6	SOLDER LUG	
REF.				—				113059	WIRE LIST	
1				1				113073-G1	DOOR (INCL. MRK.)	
REF.				—				113051-G1	↓ S/M	
REF.				—				113074-G1	↓ ARTWORK	

DRANETZ TECHNOLOGIES, INC.
EDISON, NEW JERSEY U.S.A.

PREPARED BY DATE

CHECKED BY DATE

SIZE A | CODE IDENT. NO. 23207 | LM113050-G1

ASSEMBLY SHEET SIZE | SHEET 3 OF 3

U OF M CODE | CE 6 PAIR 52 U. S. FLUID OZ. 55 U. S. GAL.
32 FEET 54 U. S. LIQUID QT. 68 POUND. AVDP

OGILVIE PRESS LANCASTER N Y

PRELIMINARY

SEP 15

LM 113075-G1

(Page 1 of 6)

* IN P... O. COL. DENOTES VENDOR ITEM: ... SOURCE CONTROL OR SPECIFICATION CONTROL DRAWING

LIST C. MATERIALS

DRAWING NUMBER LM 113075-G1 C

QTY REQD G1	QTY REQD G2	QTY REQD G3	QTY REQD G4	U OF M	ITEM NO.	SIZE	CODE IDENT.	PART OR IDENTIFYING NO.	NOMENCLATURE OR DESCRIPTION	REF. DESIG.
REF				-				113075-G1	P.CKT BD DECODING ASSEMBLY	
1				1				113076	INCL MARKING	
REF				-				113077	DRILLING	
REF				-				113078	MASTER	
REF				-				113079	SOLDER MASK	
REF				-				113080-G1	SCHEMATIC	
2				1				104022-G3	CAP FXD MICA 56 PF ±5% 500V	C1
—				—				—	SAME AS C1	C2
1				1				103209-G2	CAP FXD CERM .22UF ±20% 50V	C3
9				1				103209-G3	CAP FXD CERM .47UF ±20% 50V	C4
—				-				—	SAME AS C4	C5
—				-				—		C6
—				—				—		C7
—				—				—		C8
—				—				—		C9
—				—				—		C10

DRANETZ TECHNOLOGIES, INC.
EDISON, NEW JERSEY U S A

PREPARED BY DATE

CHECKED BY DATE

SIZE A | CODE IDENT. NO. 23207 | LM 113075-G1

ASSEMBLY SHEET SIZE

SHEET 2 OF 6

U OF M CODE | 1 PIECE 6 PAIR 52 U. S. FLUID OZ. 55 U. S. GAL. | 5 SET 32 FEET 54 U. S. LIQUID QT. 68 POUND, AVDP

OGILVIE PRESS LANCASTER N Y

* IN PART ITEM: SL . COL. DENOTES VENDOR OURCE CONTROL OR SPECIFICATION CONTROL DRAWING

LIST OF MATERIALS

DRAWING NUMBER LM 113075-G1 C

QTY REQD G1	QTY REQD G2	QTY REQD G3	QTY REQD G4	U OF M	ITEM NO.	SIZE	CODE IDENT.	PART OR IDENTIFYING NO.	NOMENCLATURE OR DESCRIPTION	REF. DESIG.	
—				—				—	SAME AS C4	C11	
—				—				—	SAME AS C4	C12	
2				1				104412-G2	DIODE HIGH SPEED SWITCHING	CR1	
—				—				—	SAME AS CR1	CR2	
1				1				104506	TRANSISTOR PNP 2N3906	Q1	
2				1				RCR07G202J	RES FXD COMP 2K ±5% 1/4W	R1	
1				1				RCR07G206J	RES FXD COMP 20M ±5% 1/4W	R2	
1				1				RCR07G105J	RES FXD COMP 1M ±5% 1/4W	R3	
									NOT USED	R4	
									NOT USED	R5	
—				—				—	SAME AS R1	R6	
2				1				RCR07G471J	RES FXD COMP 470Ω ±5% 1/4W	R7	
—				—				—	SAME AS R7	R8	

DRANETZ TECHNOLOGIES, INC.
EDISON, NEW JERSEY U.S.A.

PREPARED BY DATE

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SIZE A | CODE IDENT. NO. 23207 | LM 113075-G1

ASSEMBLY SHEET SIZE

SHEET 3 OF 6

U OF M CODE | 1 PIECE 6 PAIR 52 U. S. FLUID OZ. 55 U. S. GAL.
5 [illegible] 32 FEET 54 U. S. LIQUID QT. 68 POUND, AVDP

OGLVE PRESS LANCASTER N Y

* IN PAI COL. DENOTES VENDOR
ITEM: SE URCE CONTROL OR
SPECIFICATION CONTROL DRAWING

LIST OF MATERIALS

LM DRAWING BER 113075-G1 C

QTY REQD G1	QTY REQD G2	QTY REQD G3	QTY REQD G4	U OF M	ITEM NO.	SIZE	CODE IDENT.	PART OR IDENTIFYING NO.	NOMENCLATURE OR DESCRIPTION	REF. DESIG.	
4				1				RCR07G103J	RES FXD COMP 10K ±5% 1/4 W	R9	
—				—				—	SAME AS R9	R10	
—				—				—	↓	R11	
—				—				—	↓	R12	
2				1				110753-G1	VARISTOR	RV1	
—				—				—	SAME AS RV1	RV2	
1				1				104733-G2	RES NETWORK 47K	RN1	

DRANETZ TECHNOLOGIES, INC.
EDISON, NEW JERSEY U.S.A.

PREPARED BY DATE
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SIZE A | CODE IDENT. NO. 23207 | LM 113075-G1

ASSEMBLY SHEET SIZE | SHEET 4 OF 6

U OF M CODE | 1 PIECE 6 PAIR 52 U. S. FLUID OZ. 55 U. S. GAL.
5 SET 32 FEET 54 U. S. LIQUID QT. 68 POUND, AVDP

OGILVIE PRESS LANCASTER N Y

* IN PART ITEM: SEE SOURCE CONTROL OR SPECIFICATION CONTROL DRAWING COL. DENOTES VENDOR

LIST OF MATERIALS

DRAWING NUMBER LM 113075-G1 C

QTY REQD G1	QTY REQD G2	QTY REQD G3	QTY REQD G4	U OF M	ITEM NO.	SIZE	CODE IDENT.	PART OR IDENTIFYING NO.	NOMENCLATURE OR DESCRIPTION	REF. DESIG.
1				1				104205-G9	IC 1OF 8 ANALOG SWITCH	U1
1				1				104239-G1	IC CMOS CPU	U2
1				1				104271-G9	IC HEX INVERTER	U3
1				1				104392-G7	IC OCTAL TRI-STATE BUFFER	U4
1				1				SEE PROGRAM LISTING 105924	IC PROM	U5
1				1				104271-G2	IC OCTAL LATCH	U6
1				1				104271-G3	IC DECODER	U7
1				1				104249-G1	IC ACIA	U8
1				1				112043-G2	IC POWER SUPPLY MONITOR	U9
1				1				110749-G9	IC SOCKET 40 PIN	USE @ U2
1				1				110749-G8	IC SOCKET 28 PIN	USE @ U8
1				1				110749-G7	IC SOCKET 24 PIN	USE @ U5

DRANETZ TECHNOLOGIES, INC.
EDISON, NEW JERSEY U S A

PREPARED BY DATE

CHECKED BY DATE

SIZE A | CODE IDENT. NO. 23207 | LM 113075-G1

ASSEMBLY SHEET SIZE

SHEET 5 OF 6

U OF M CODE | 1 [illegible] E 6 PAIR 52 U. S. FLUID OZ. 55 U. S. GAL.
5 [illegible] 32 FEET 54 U. S. LIQUID QT. 68 POUND, AVDP

OGILVIE PRESS LANCASTER N Y

* IN PA[illegible] COL. DENOTES VENDOR ITEM: SL[illegible] SOURCE CONTROL OR SPECIFICATION CONTROL DRAWING

LIST OF MATERIALS

DRAWING NUMBER: LM 113075-G1 C

QTY REQD G1	QTY REQD G2	QTY REQD G3	QTY REQD G4	U OF M	ITEM NO.	SIZE	CODE IDENT.	PART OR IDENTIFYING NO.	NOMENCLATURE OR DESCRIPTION	REF. DESIG.
1				1				110847-G1	CRYSTAL 1.8432 MHZ	Y1
1				1			AMP	520257-2	MODULAR JACK PERPENDICULAR MT	J1
1				1			AMP	88684-3	CABLE JUMPER ASSY 4 COND	
1				1			AMP	2-88665-4	CABLE JUMPER ASSY, 25 COND.	

DRANETZ TECHNOLOGIES, INC.
EDISON, NEW JERSEY U.S.A.

PREPARED BY DATE

CHECKED BY DATE

SIZE A | CODE IDENT. NO. 23207 | LM 113075-G1

ASSEMBLY SHEET SIZE

SHEET 6 OF 6

U OF M CODE | 1 PIECE 5 SET | 6 PAIR 32 FEET | 52 U. S. FLUID OZ. 54 U. S. LIQUID QT. | 55 U. S. GAL. 68 POUND, AVDP

OGLVE PRESS LANCASTER N Y

PRELIMINARY

SEP 15

LM 112824-G1

(Page 1 of 2)

* IN PAR[illegible]). COL. DENOTES VENDOR ITEM: S[illegible] SOURCE CONTROL OR SPECIFICATION CONTROL DRAWING

LIST OF MATERIALS

DRAWING [illegible]MBER LM112824-G1 A

QTY REQD G1	QTY REQD G2	QTY REQD G3	QTY REQD G4	U OF M	ITEM NO.	SIZE	CODE IDENT.	PART OR IDENTIFYING NO.	NOMENCLATURE OR DESCRIPTION	REF. DESIG.
REF				–				111024-G1	MODULAR PLUG CABLE ASSY.	
2				1				110773-G2	MODULAR PLUG	P1
–				–				——	SAME AS P1	P2
REF				–			AMP	231652-3	HAND TOOL APPLICATOR	
.3				32				110774	PHONE CORD	

DRANETZ TECHNOLOGIES, INC.
EDISON, NEW JERSEY U.S.A.

PREPARED BY DATE

CHECKED BY DATE

SIZE	CODE IDENT. NO.	LM112824-G1
A	23207	

ASSEMBLY SHEET SIZE

SHEET 2 OF 2

U OF M CODE | 1 PIECE 6 PAIR 52 U. S. FLUID OZ. 55 U. S. GAL. | 5 SET 32 FEET 54 U. S. LIQUID QT. 68 POUND, AVDP

OGLVE PRESS LANCASTER N Y

PRELIMINARY

SEP 15

LM 113093-G1

(Page 1 of 2)

* IN PART NO. COL. DENOTES VENDOR ITEM. SOURCE CONTROL OR SPECIFICATION CONTROL DRAWING

LIST OF MATERIALS

DRAWING NUMBER: LM113093-G1 B

QTY REQD G1	QTY REQD G2	QTY REQD G3	QTY REQD G4	U OF M	ITEM NO.	SIZE	CODE IDENT.	PART OR IDENTIFYING NO.	NOMENCLATURE OR DESCRIPTION	REF. DESIG.
REF				-				113093-G1	FOOT ASSEMBLY	
1				1				113094-G1	RUBBER FOOT MOD	
1				1				113095-G1	BRACKET	
1				1				113096-G1	SUPPORT	
2				1				107547-G3	ROLL PIN, .062D X .562L	

DRANETZ TECHNOLOGIES, INC.
EDISON, NEW JERSEY U.S.A.

PREPARED BY DATE

CHECKED BY DATE

SIZE A | CODE IDENT. NO. 23207 | LM113093-G1

ASSEMBLY SHEET SIZE

SHEET 2 OF 2

U OF M CODE | 1 PIECE 5 SET | 6 PAIR 32 FEET | 52 U. S. FLUID OZ. 54 U. S. LIQUID QT. | 55 U. S. GAL. 68 POUND, AVDP

OGLVE PRESS LANCASTER N Y

PRELIMINARY

SEP 15

LM 113070-G1

(Page 1 of 2)

* IN PA[illegible]. COL. DENOTES VENDOR ITEM: S SOURCE CONTROL OR SPECIFICATION CONTROL DRAWING

LIST O[illegible] MATERIALS

DRAWING[illegible]MBER LM113010-G1 C

QTY REQD G1	QTY REQD G2	QTY REQD G3	QTY REQD G4	U OF M	ITEM NO.	SIZE	CODE IDENT.	PART OR IDENTIFYING NO.	NOMENCLATURE OR DESCRIPTION	REF. DESIG.	
REF				-				113070-G1	DISK PACK ASSY		
1				1				113227-G10	FLOPPY DSDD DISKETTE		
1				1				113071-G1	DECAL		
REF				-				113072-G2	ARTWORK		

DRANETZ TECHNOLOGIES, INC.
EDISON NEW JERSEY U S A

PREPARED BY DATE

CHECKED BY DATE

SIZE A | CODE IDENT. NO. 23207 | LM 113070-G1

ASSEMBLY SHEET SIZE

SHEET 2 OF 2

U OF M CODE					
	1 PIECE	6 PAIR	52 U. S. FLUID OZ.	55 U. S. GAL.	
	5 SET	32 FEET	54 U. S. LIQUID QT.	68 POUND, AVDP	

OGLVIE PRESS LANCASTER N Y

PRELIMINARY

SECTION VII
SCHEMATICS AND GENERAL ASSEMBLIES

The following pages contain the schematics and assembly drawings for the Series 656. The page number for each drawing appears in its lower right-hand corner.

Drawing		Page (7-)
112775-G1	Model 656 Disturbance Waveform Analyzer	3
113098	Interconnecting Wiring Diagram (Rev. A)	4
112810-G1	Mainframe CRT Assembly (Rev. C)	5
112815-G1	CRT Control Board Assembly (Rev. D)	6
112820-G1	CRT Control Board Schematic (Rev. D)	7
112825-G1	Video Timing Control Bd Assembly (Rev. C)	8
112830-G1	Video Timing Control Bd Schematic (Rev. C)	9
112831-G1	Control/Video Timing Interface Signal Cable Assembly (Rev. A)	10
112832-G1	CRT/Video Timing Interface Signal Cable Assembly (Rev. B)	11
112834-G1	CRT Extension Cable Assembly (Rev. A)	12
112875-G1	Front Panel Interface Bd Assembly (Rev. D)	13
112880-G1	Front Panel Interface Bd Schematic (Rev. D)	14
112911-G[ ]	Floppy Main Assembly (Rev. C)	15
112845-G1	Floppy Controller Board Assembly (Rev. B)	16
112850-G1	Floppy Controller Board Schematic (Rev. B)	17
112840-G[ ]	Floppy Interface Board Assembly (Rev. B)	18
112844-G[ ]	Floppy Interface Board Schematic (Rev. B)	19
112839-G1	Floppy Interface Signal Cable Assembly (Rev. A)	20
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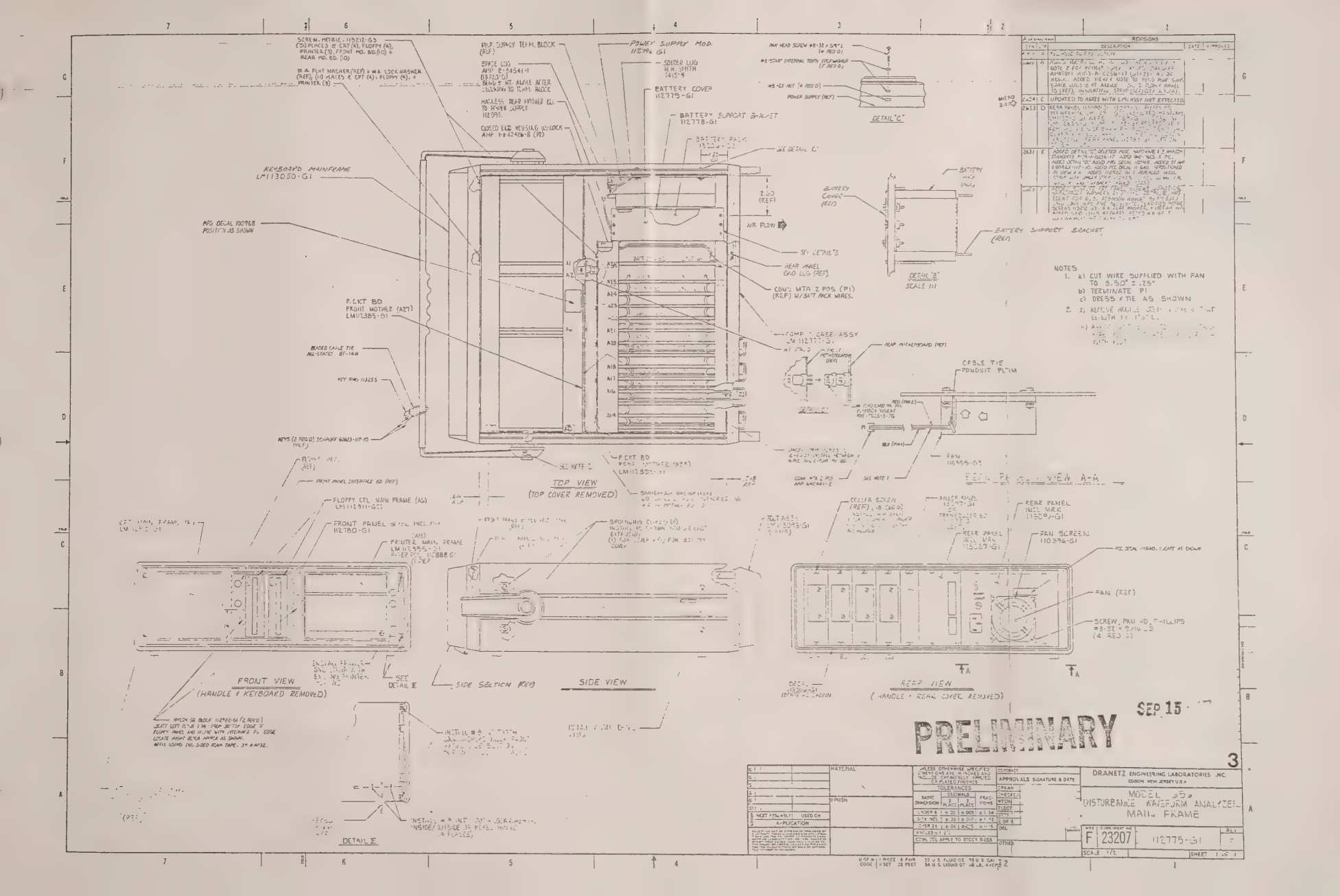
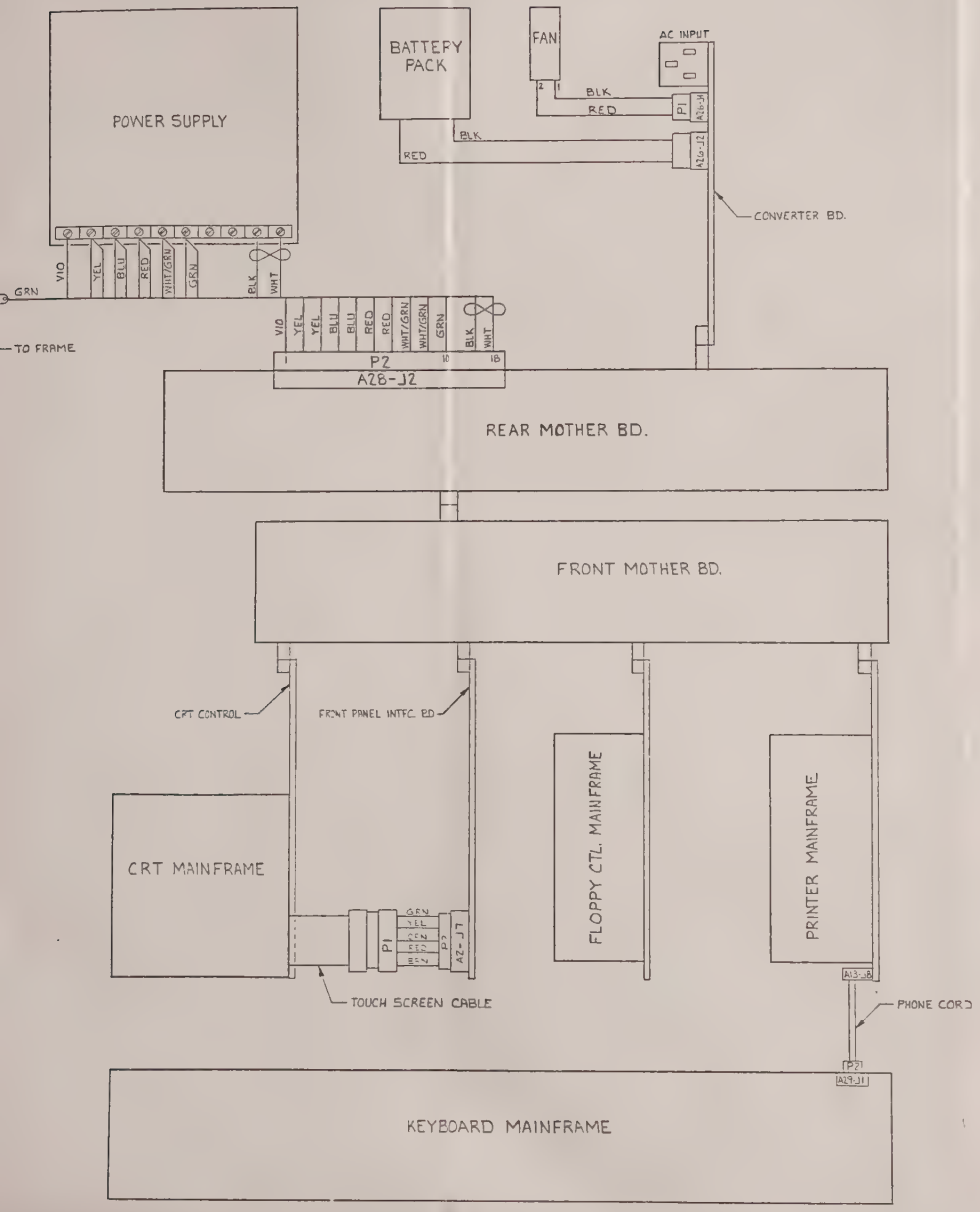
112855-G1	Mainframe Printer Assembly (Rev. D)	22
112865-G1	Printer Board Assembly (Rev. E)	23
112870-G1	Printer Board Schematic (Rev. E)	24
112892-G1	Printer Assembly (Rev. B)	25
112905-G1	Channel Input Board Assembly (Rev. D)	26
112910-G1	Channel Input Board Schematic (Rev. D)	27
112915-G1	A/D Conversion Board Assembly (Rev. B)	28
112920-G1	A/D Conversion Board Schematic (Rev. B)	29
112925-G1	Front End Processor Bd Assembly (Rev. B)	30
112930-G1	Front End Processor Bd Schematic (Rev. B)	31
112935-G1	Transducer Monitor Bd Assembly (Rev. C)	33
112940-G1	Transducer Monitor Bd Schematic (Rev. C)	34
112945-G1	Memory Board Assembly (Rev. B)	35
112950-G1	Memory Board Schematic (Rev. B)	36
112955-G1	CPU Board Assembly (Rev. C)	37
112960-G1	CPU Board Schematic (Rev. C)	38
112964-G1	Battery Converter Mainframe Assembly (Rev. B)	40
112965-G1	Converter Board Assembly (Rev. D)	41
112970-G1	Converter Board Schematic (Rev. D)	42
112885-G1	Front Mother Board Assembly (Rev. B)	43
112890-G1	Front Mother Board Schematic (Rev. B)	44

Drawing Page (7-)

112895-G1 Rear Mother Board Assembly (Rev. A) 45
112900-G1 Rear Mother Board Schematic (Rev. A) 46
113050-G1 Keyboard Mainframe Assembly (Rev. B) 47
113075-G1 Decoding Assembly (Rev. C) 48
113080-G1 Decoding Schematic (Rev. C) 49
112824-G1 4-Pin Double Ended Modular
Plug Cable Assembly (Rev. A) 50
113093-G1 Foot Assembly (Rev. B) 51
113070-G1 Disk Pack Assembly (Rev. C) 52

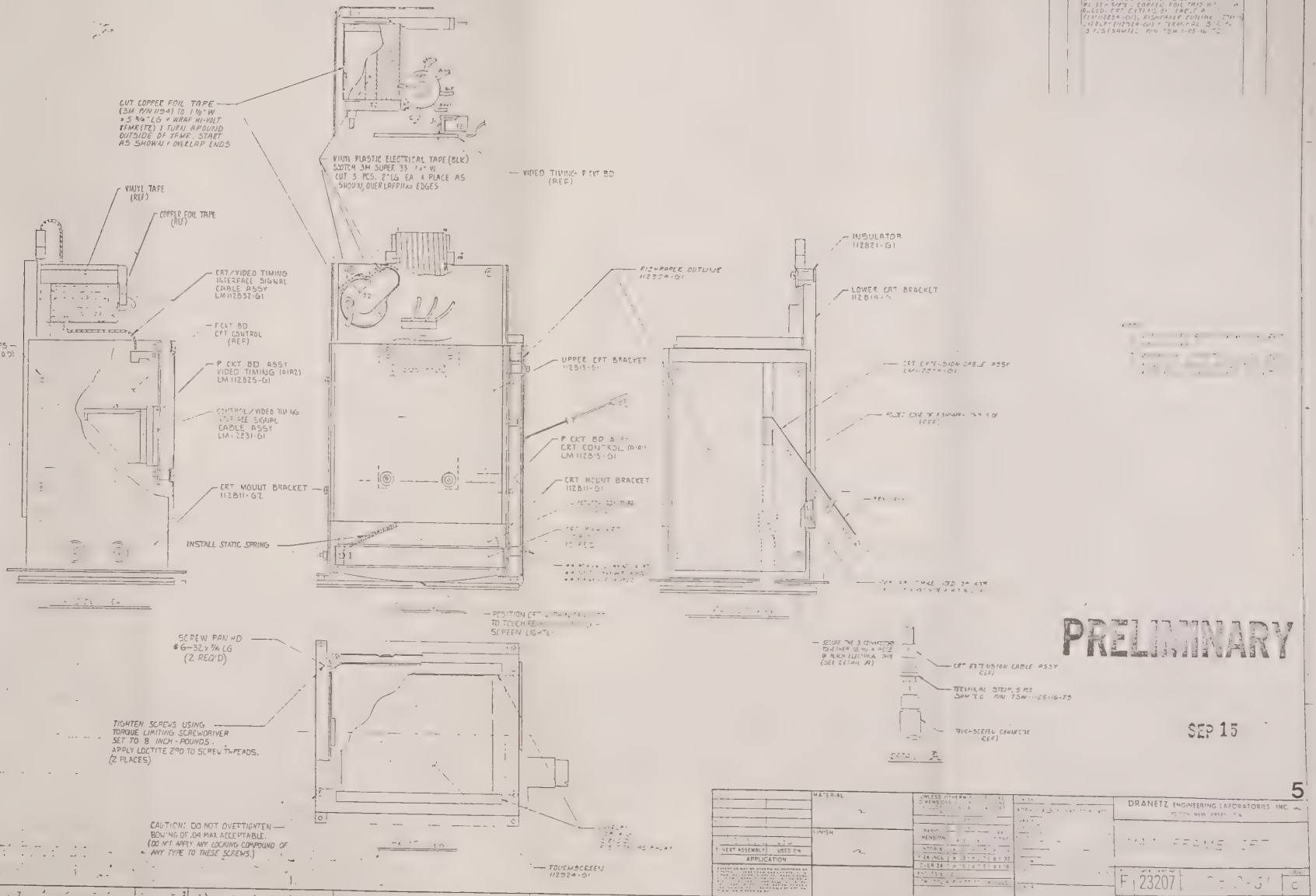

KEYBOARD MAINFRAME LM113050-G1
BATTERY COVER 112779-G1
BATTERY SUPPORT BRACKET 112778-G1
POWER SUPPLY MOD. 112796-G1
FAN 110355-G2
FAN SCREEN 110396-G1
FRONT PANEL 112780-G1
REAR PANEL INCL MRK 113509-G1
FRONT VIEW (HANDLE & KEYBOARD REMOVED)
SIDE VIEW
REAR VIEW (HANDLE & REAR COVER REMOVED)
TOP VIEW (TOP COVER REMOVED)
DETAIL 'C'
DETAIL 'B'
DETAIL 'E'
NOTES
PRELIMINARY
SEP 15
MODEL 55A DISTURBANCE WAVEFORM ANALYZER MAIN FRAME
DRANETZ ENGINEERING LABORATORIES, INC.
EDISON, NEW JERSEY U.S.A.
F 23207
112775-G1
SCALE 1/2
SHEET 1 OF 1



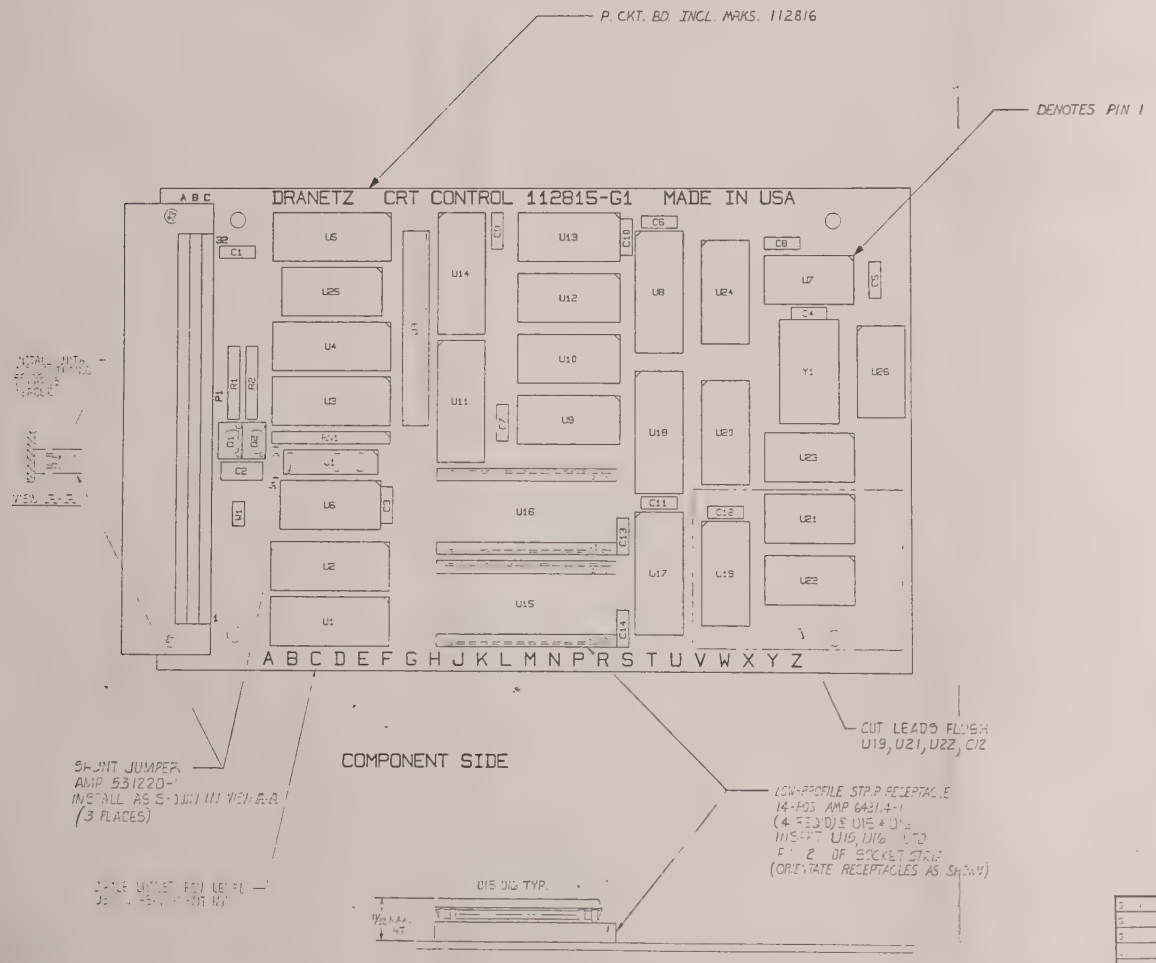
DRN	LTR	DESCRIPTION
2658	A	RELEASED TO PRODUCTION

PRELIMINARY SEP 15

MATERIAL	UNLESS OTHERWISE SPECIFIED DIMENSIONS ARE IN INCHES AND INCLUDE CHEMICAL, APPLIED OR PLATED FINISHES	DRN	DRANETZ TECHNOLOGIES INC EDISON, NEW JERSEY U.S.A.	
FINISH	TOLERANCES	CK		
	BASIC DIMENSIONS ANGLES	ENG	INTERCONN WIRING DIAGRAM	
NEXT ASSY USED ON	DECIMALS	APPD	SIZE / CODE IDENT NO / DWG NO / REV	
APPLICATION	ANGLES		D 23207 113098 A	
			SCALE 1	SHEET 1 OF 1


CUT COPPER FOIL TAPE (3M P/N 1194) TO 1 1/2" W x 5 3/4" LG & WRAP HI-VOLT EMR(TE) 1 TURN AROUND OUTSIDE OF YEWR. START AS SHOWN & OVERLAP ENDS
VINYL PLASTIC ELECTRICAL TAPE (BLK) SCOTCH 3M SUPER 33 3/4" W CUT 3 PCS. 2" LG EA & PLACE AS SHOWN, OVERLAPPING EDGES
VIDEO TIMING P CKT BD (REF)
VINYL TAPE (REF)
COPPER FOIL TAPE (REF)
CRT/VIDEO TIMING INTERFACE SIGNAL CABLE ASSY LM112032-G1
P CKT BD CRT CONTROL (REF)
SCREW, PAN HD, PHILLIPS #4-40 x 1/4 LG (5 REQ'D) (REF)
P CKT BD ASSY VIDEO TIMING (DIR2) LM112825-G1
CONTROL/VIDEO TIMING INTERFACE SIGNAL CABLE ASSY LM112831-G1
CRT MOUNT BRACKET 112811-G2
INSTALL STATIC SPRING
FISHPAPER OUTLINE 112824-G1
UPPER CRT BRACKET 112819-G1
P CKT BD & CRT CONTROL (DIR1) LM112815-G1
CRT MOUNT BRACKET 112811-G1
INSULATOR 112821-G1
LOWER CRT BRACKET 112818-G1
CRT EXTENSION CABLE ASSY LM112294-G1
SCREW PAN HD #6-32 x 3/16 LG (2 REQ'D)
TIGHTEN SCREWS USING TORQUE LIMITING SCREWDRIVER SET TO 8 INCH-POUNDS. APPLY LOCTITE 290 TO SCREW THREADS. (2 PLACES)
CAUTION: DO NOT OVERTIGHTEN — BOWING OF .04 MAX ACCEPTABLE. (DO NOT APPLY ANY LOCKING COMPOUND OF ANY TYPE TO THESE SCREWS.)
TOUCHSCREEN 112824-G1
SECURE THE 3 CONNECTOR TOGETHER WITH A PIECE OF BLACK ELECTRICAL TAPE (SEE DETAIL A)
CRT EXTENSION CABLE ASSY (REF)
TERMINAL STRIP, 5 POS DANTEC P/N TSM-105-16-T2
TOUCHSCREEN CONNECTOR (REF)
PRELIMINARY
SEP 15
REVISIONS
DESCRIPTION
DATE
APPROVED
RELEASE TO PRODUCTION
DRANETZ ENGINEERING LABORATORIES, INC.
F 23207
5

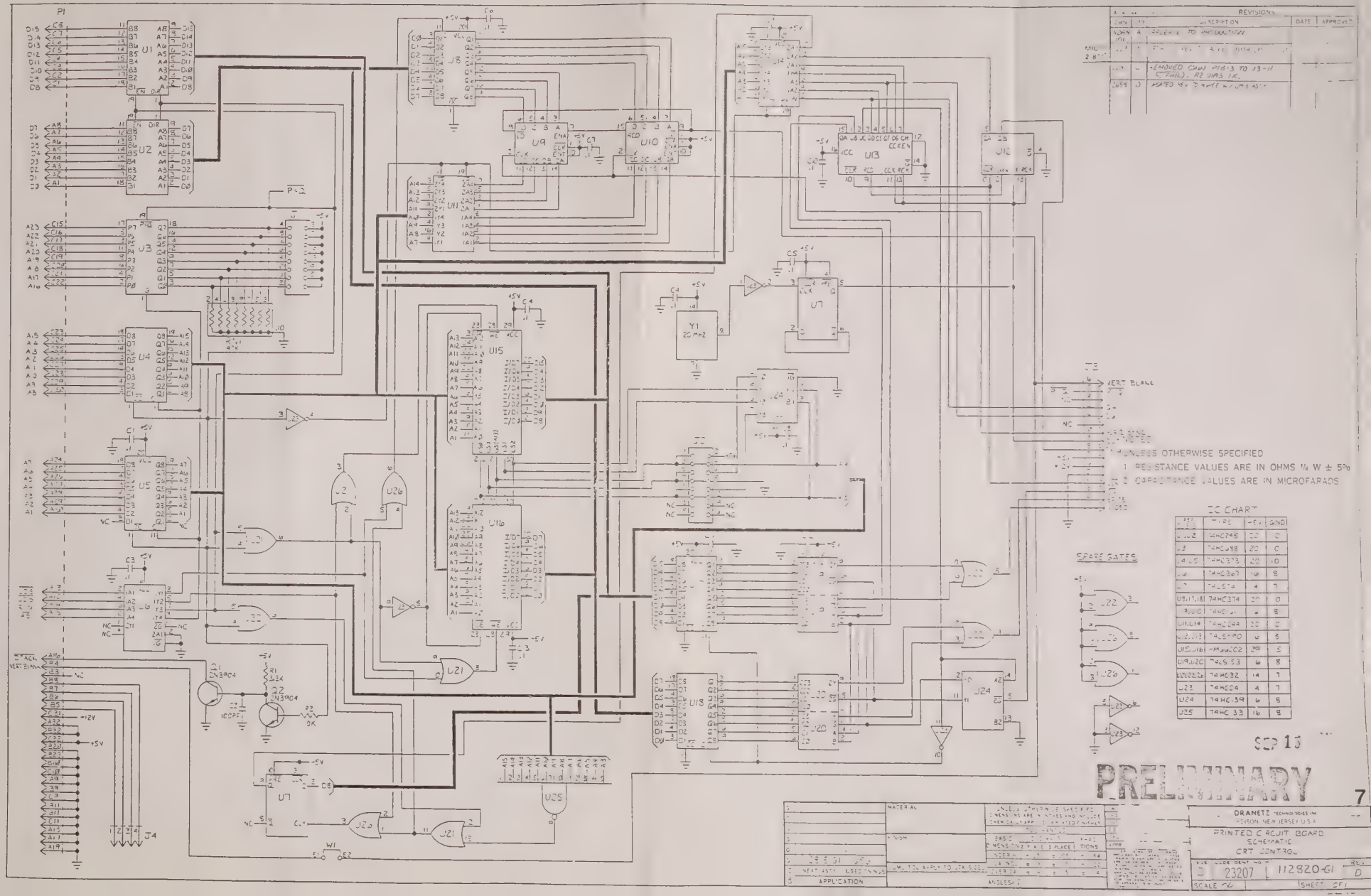
	A	RELEASE TO PRODUCTION	
MICRO 2-87	B	[illegible]	
	C	[illegible]	
	D	DELETED I C SOCKET 104934-6 @ U15 & U16, QTY. WAS 2. ADDED AMP 6A3114-1 QTY. 4 & "ORIENTATE" NOTATION.	


P. CKT. BD. INCL. MARKS. 112816
DENOTES PIN 1
DRANETZ CRT CONTROL 112815-G1 MADE IN USA
A B C D E F G H J K L M N P R S T U V W X Y Z
SHUNT JUMPER AMP 531220-1 INSTALL AS S-DIA IN VIEW A-A (3 PLACES)
COMPONENT SIDE
CUT LEADS FLUSH U19, U21, U22, C12
LOW-PROFILE STRIP RECEPTACLE 14-POS AMP 6A3114-1 (4 REQ'D) @ U15 & U16 INSERT U15, U16 PIN 2 OF SOCKET STRIP (ORIENTATE RECEPTACLES AS SHOWN)
U15 U16 TYP.

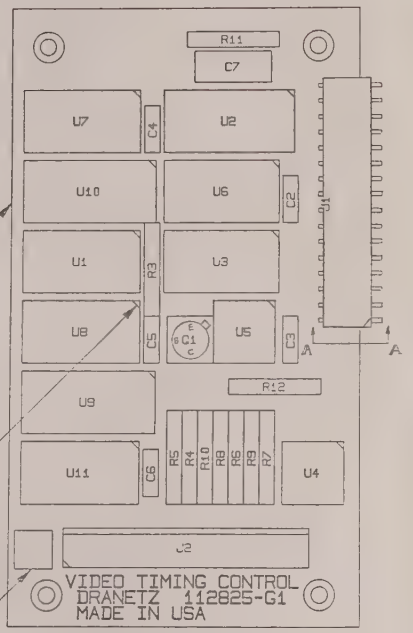
PRELIMINARY

SEP 15

	MATERIAL	UNLESS OTHERWISE SPECIFIED DIMENSIONS ARE IN INCHES AND INCLUDE CHEMICALLY APPLIED OR PLATED FINISHES		DRANETZ TECHNOLOGIES INC. EDISON, NEW JERSEY U.S.A.	
		TOLERANCES		PRINTED CIRCUIT BOARD ASSEMBLY CRT CONTROL	
	FINISH	BASIC DIMENSION	DECIMALS 2 PLACE ± .03 / 3 PLACE ± .010	FRACTIONS ± 1/64	
		UNLESS SPECIFIED OTHERWISE			
112810-G1 656	COML TOL APPLY TO STK SIZES	OVER 24 ± .06	± .4	± 1/32	
NEXT ASSY USED ON NUS		ANGLES ± 5°			
APPLICATION				SIZE D / CODE IDENT NO 23207 / 112815-G1 / REV D	
				SCALE 2:1	SHEET 1 OF 1


REVISIONS
DESCRIPTION
DATE
APPROVED
CHANGE TO INCORPORATION
REMOVED CAPS #13-3 TO 13-11 (THRU) #2 U13 I.C.
ADDED +5V 2 WIRE W/ JUMPER
P1
U1
U2
U3
U4
U5
U6
U7
U8
U9
U10
U11
U12
U13
U15
U16
U18
U20
U21
U22
U23
U24
U25
U26
Y1
20 MHz
Q1
2N3904
Q2
2N3904
R1
3.3K
R2
100PFD
R3
10K
RN1
4.7K
J4
W1
VERT BLANK
VERT BLANK
NC
+5V
-12V
UNLESS OTHERWISE SPECIFIED
1. RESISTANCE VALUES ARE IN OHMS 1/4 W ± 5%
2. CAPACITANCE VALUES ARE IN MICROFARADS
IC CHART
TYPE
+5V
GND
74HC245
20
10
74HC688
20
10
74HC373
20
10
74HC367
16
8
74LS74
14
7
74HC374
20
10
74HC04
14
7
74HC244
20
10
74LS670
16
8
MM5202
20
5
74LS 53
16
8
74HC32
14
7
74HC04
14
7
74HC139
16
8
74HC 33
16
8
SPARE GATES
SEP 15
PRELIMINARY
MATERIAL
FINISH
APPLICATION
DRANETZ TECHNOLOGIES INC
EDISON NEW JERSEY USA
PRINTED CIRCUIT BOARD
SCHEMATIC
CRT CONTROL
SIZE
CODE IDENT NO
DWG NO
REV
D
23207
112820-G1
SCALE NONE
SHEET 1 OF 1

A ORIGINAL ISSUE		REVISIONS		
DRN	LTR	DESCRIPTION	DATE	APPROVED
MICRO 2-87	B	REMOVED: J3, SHUNT, R1, R2 & C1 ADDED: U10		
	C	J1 WAS CT. POST HEADER, AMP 1-640454-6, ADDED VIEW A-A		



P. CKT. BD. (INCL MRK) 112826

DENOTES PIN 1

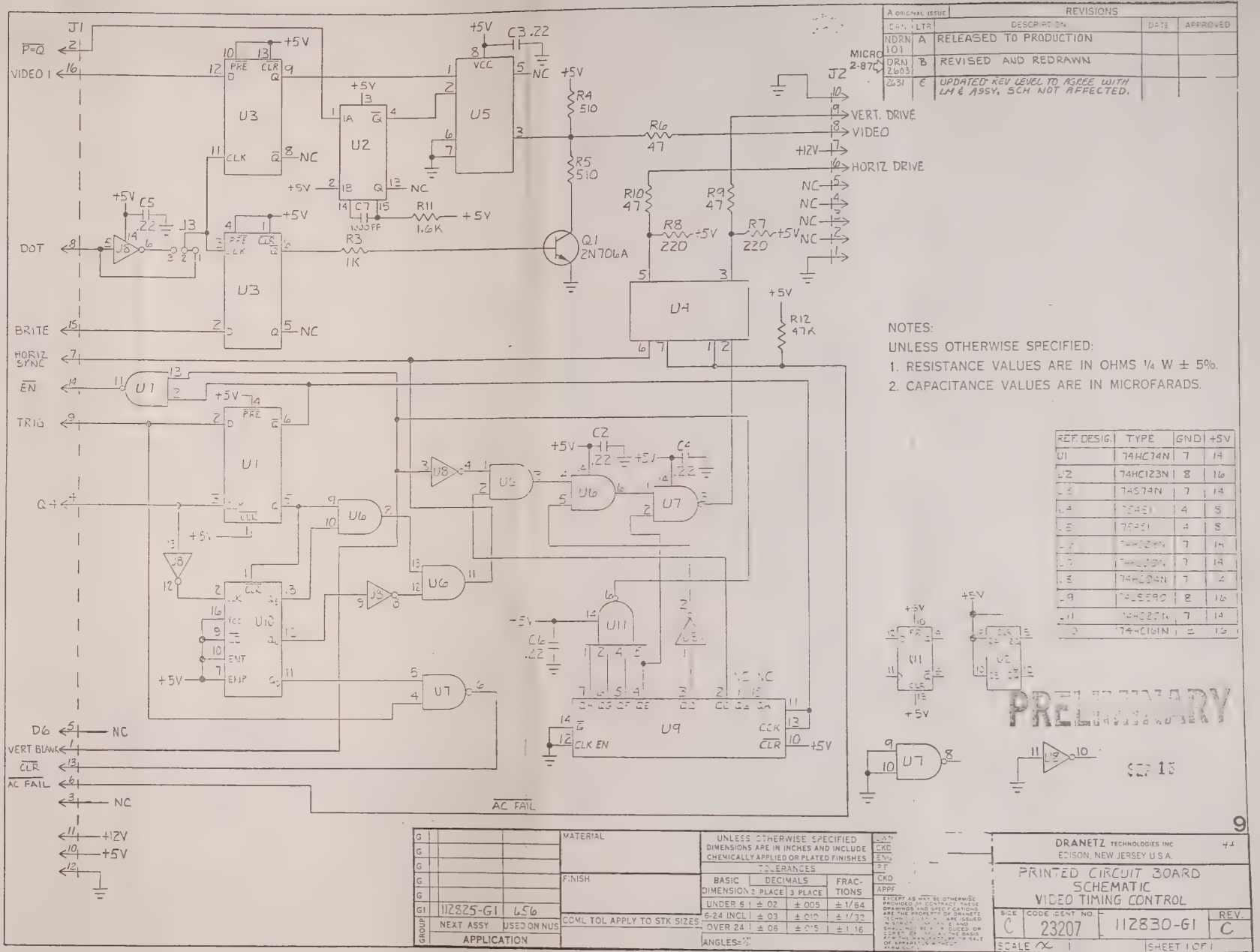
REV. LEVEL DECAL 102980

SEP 15

PRELIMINARY

8

G			MATERIAL	UNLESS OTHERWISE SPECIFIED DIMENSIONS ARE IN INCHES AND INCLUDE CHEMICALLY APPLIED OR PLATED FINISHES		DRN	DRANETZ TECHNOLOGIES INC EDISON, NEW JERSEY U.S.A.
G						CKD	
G						ENG	
G				TOLERANCES		PE	PRINTED CIRCUIT BOARD ASSEMBLY VIDEO TIMING CONTROL
G			FINISH	BASIC DIMENSION	DECIMALS 2 PLACE / 3 PLACE	CKD	
G				UNDER 6	± .02 / ± .005	APPR	
G1	112810-G1	656		6-24 INCL	± .03 / ± .010		SIZE C | CODE IDENT NO 23207 | 112825-G1 | REV C
GROUP	NEXT ASSY	USED ON NUS	COML TOL APPLY TO STK SIZES	OVER 24	± .06 / ± .015		SCALE 2/1 | SHEET 1 OF 1
	APPLICATION			ANGLES ± ½°	± 1/16		



REVISIONS				
A ORIGINAL ISSUE				
CAN	LTR	DESCRIPTION	DATE	APPROVED
NDRN 101	A	RELEASED TO PRODUCTION		
DRN 2603	B	REVISED AND REDRAWN		
2631	C	UPDATED REV LEVEL TO AGREE WITH LM & ASSY, SCH NOT AFFECTED.		

NOTES:
UNLESS OTHERWISE SPECIFIED:
1. RESISTANCE VALUES ARE IN OHMS 1/4 W ± 5%.
2. CAPACITANCE VALUES ARE IN MICROFARADS.

REF. DESIG.	TYPE	GND	+5V
U1	74HC74N	7	14
U2	74HC123N	8	16
U3	74S74N	7	14
U4	7545I	4	5
U5	7545I	4	5
U6	74HC08N	7	14
U7	74HC08N	7	14
U8	74HC04N	7	4
U9	74LS690	8	16
U10	74HC32N	7	14
U11	74HC161N	8	16

PRELIMINARY

SCP 15

9

G		MATERIAL	UNLESS OTHERWISE SPECIFIED DIMENSIONS ARE IN INCHES AND INCLUDE CHEMICALLY APPLIED OR PLATED FINISHES		DRAWN CHKD ENGR P.E. CKD APPR
G			TOLERANCES		
G		FINISH	BASIC DIMENSION / DECIMALS 2 PLACE / 3 PLACE / FRACTIONS		
G			UNDER 6 / ± .02 / ± .005 / ± 1/64		
G1	112825-G1 / 656	COML TOL APPLY TO STK SIZES	6-24 INCL / ± .03 / ± .010 / ± 1/32		
GROUP	NEXT ASSY / USED ON NUS		OVER 24 / ± .06 / ± .015 / ± 1/16		
	APPLICATION		ANGLES ± 1°		

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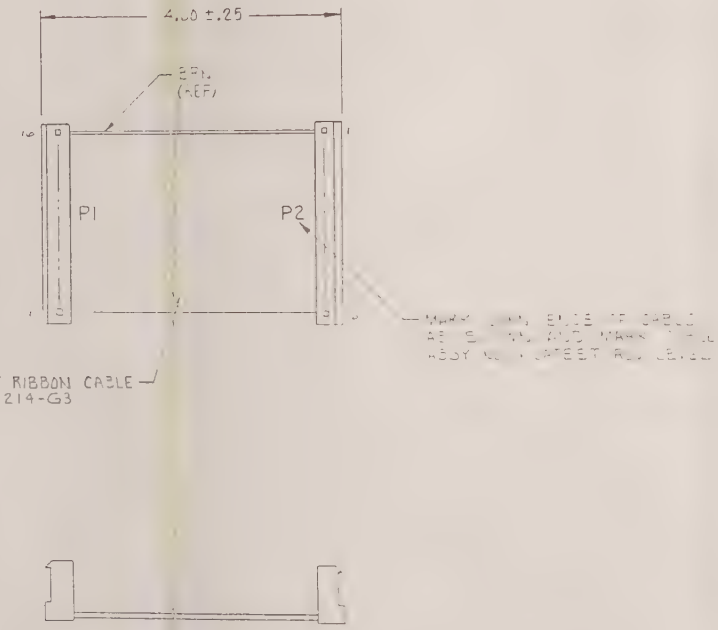
DRANETZ TECHNOLOGIES INC
EDISON, NEW JERSEY U.S.A.

PRINTED CIRCUIT BOARD
SCHEMATIC
VIDEO TIMING CONTROL

SIZE	CODE IDENT NO.		REV.
C	23207	112830-G1	C
SCALE ∝ 1		SHEET 1 OF 1	

REVISIONS				
LTR	DESCRIPTION	DATE	APPROVED
A	RELEASED TO PRODUCTION		



PRELIMINARY

10

GROUP	112810-G1	656
	NEXT ASSEMBLY	USED ON
	APPLICATION	

MATERIAL: X

FINISH: X

UNLESS OTHERWISE SPECIFIED DIMENSIONS ARE IN INCHES AND INCLUDE CHEMICALLY APPLIED OR PLATED FINISHES

TOLERANCES

BASIC DIMENSION	DECIMALS 2 PLACE	DECIMALS 3 PLACE	FRACTIONS
UNDER 6	± .02	± .005	± 1/64
6-24 INCL	± .03	± .010	± 1/32
OVER 24	± .06	± .015	± 1/16

ANGLES ± 1/2°

COM'L TOL APPLY TO STOCK SIZES

CONTRACT

APPROVALS SIGNATURE & DATE

DWN

CHK

ENG

P.E.

QMC

APPR

DEL

OTHER

DRANETZ TECHNOLOGIES INC.
EDISON, NEW JERSEY U.S.A. 1/5

CONTROL/VIDEO TIMING INTERFACE SIGNAL CABLE ASSY

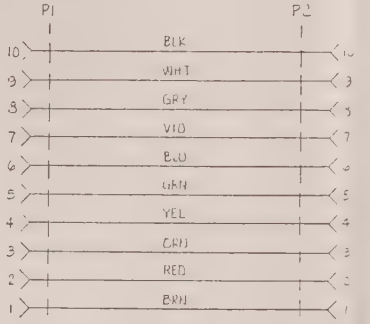
SIZE	CODE IDENT NO		REV
C	23207	112831-G1	A

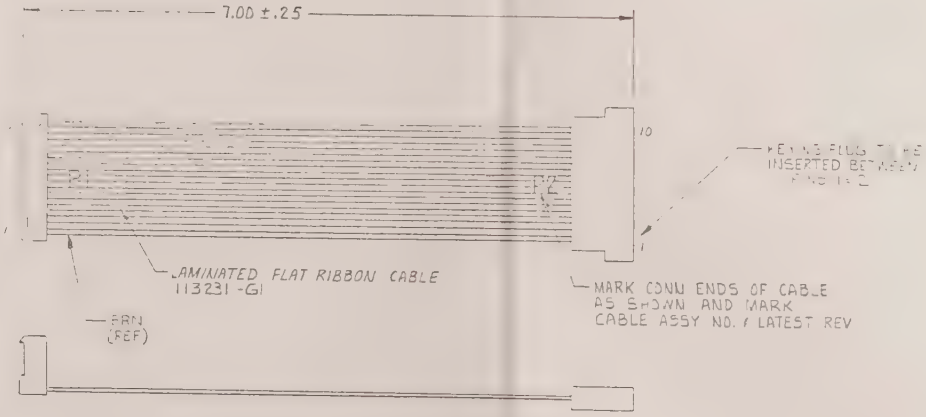
SCALE ~ SHEET 1 OF 1

U OF M CODE | 1 PIECE 6 PAIR 32 FEET 5 SET 20 REF DOC | 52 U. S. FLUID OZ 55 U. S. GAL. 54 U. S. LIQUID QT. 68 LB., AVDP

REVISIONS				
DRN	LTR	DESCRIPTION	DATE	APPROVED
NDRN TOL 003	A	RELEASED TO PRODUCTION		
	B	REVISED WIRE COLORS: RED WAS PIN 1, GRN WAS PIN 2, RED WAS PIN 3, ETC.		

MICAC 2-87





NOTE:
... 90215-1 HAND CRIMP TOOL AT P2

SEP 13

PRELIMINARY

11

G			MATERIAL ~
G			
G			
G			FINISH ~
G			
G1	112910-G1	556	
GROUP	NEXT ASSEMBLY	USED ON	
	APPLICATION		

UNLESS OTHERWISE SPECIFIED DIMENSIONS ARE IN INCHES AND INCLUDE CHEMICALLY APPLIED OR PLATED FINISHES

TOLERANCES

BASIC DIMENSION	DEC MALS 2 PLACE	DEC MALS 3 PLACE	FRACTIONS
UNDER 6	± 02	± 005	± 1/64
6-24 INCL	± 03	± 010	± 1/32
OVER 24	± 06	± 015	± 1/16
ANGLES ± 1/2°			
COML TOL APPLY TO STOCK SIZES			

CONTRACT

APPROVALS SIGNATURE & DATE

DWN
CHD
ENG
PE
CHD
SUPV
DEL
OTHER

DRANETZ TECHNOLOGIES INC.
EDISON, NEW JERSEY U.S.A.

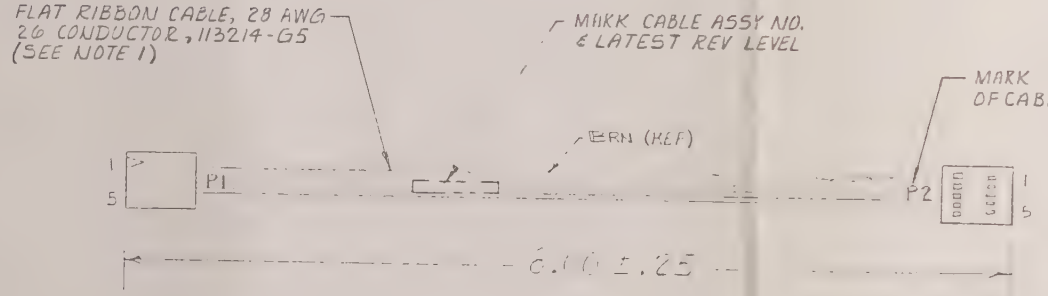
CRT VIDEO TIMING INTERFACE SIGNAL CABLE ASSY

SIZE	CODE IDENT NO		REV
C	23207	112832-G1	B
SCALE ~		SHEET 1 OF 1	

EXCEPT AS MAY BE OTHERWISE PROVIDED IN CONTRACT THESE DRAWINGS AND SPECIFICATIONS ARE THE PROPERTY OF DRANETZ TECHNOLOGIES INC. ARE ISSUED IN STRICT CONFIDENCE AND SHALL NOT BE REPRODUCED OR COPIED OR USED AS THE BASIS FOR THE MANUFACTURE OR SALE OF APPARATUS WITHOUT PERMISSION

U OF M CODE | 1 PIECE 6 PAIR 32 FEET | 5 SET 20 REF DOC | 52 U.S. FLUID OZ 55 U.S. GAL | 54 U.S. LIQUID QT 68 LB., AVDP

A ORIGINAL ISSUE	REVISIONS			
DRN.	LTR	DESCRIPTION	DATE	APPROVED
2631	A	RELEASE TO PRODUCTION		



NOTES:
1. REMOVE FROM 26 COND CABLE AND DISCARD REMAINDER OF CABLE.

PRELIMINARY

12

GROUP			
G			
G			
G			
G			
G			
G1	112810	656	
	NEXT ASSY	USED ON	
	APPLICATION		

MATERIAL

FINISH

COML TOL APPLY TO STK SIZES

UNLESS OTHERWISE SPECIFIED
DIMENSIONS ARE IN INCHES AND INCLUDE CHEMICALLY APPLIED OR PLATED FINISHES

BASIC DIMENSION	DECIMALS 2 PLACE	DECIMALS 3 PLACE	FRACTIONS
UNDER 6	± .02	± .005	± 1/64
6-24 INCL	± .03	± .010	± 1/32
OVER 24	± .06	± .015	± 1/16
ANGLES=	½°		

DWN
CKD
ENG
PE
CKD
APPR

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DRANETZ TECHNOLOGIES INC
EDISON, NEW JERSEY U.S.A.

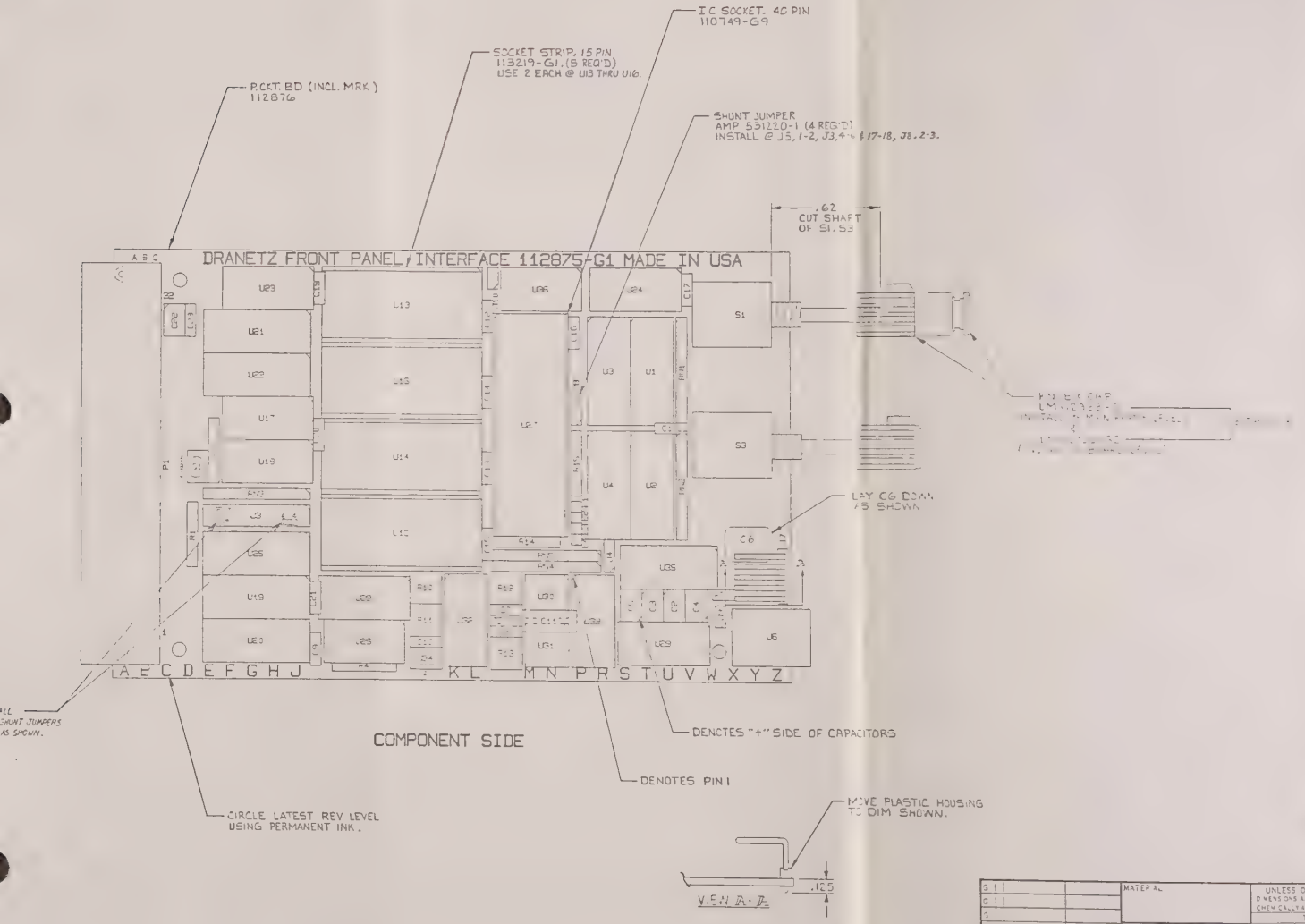
CRT
EXTENSION CABLE ASSY

SIZE	CODE IDENT. NO.		REV.
B	23207	112834-G1	A
SCALE 1/1		SHEET 1 OF 1	

U OF M CODE | 1 PIECE 5 SET | 6 PAIR 32 FEET | 52 U. S. FLUID OZ. 55 U. S. GAL. 54 U. S. LIQUID QT. 68 LB., AVDP.

OGILVIE PRESS 51712

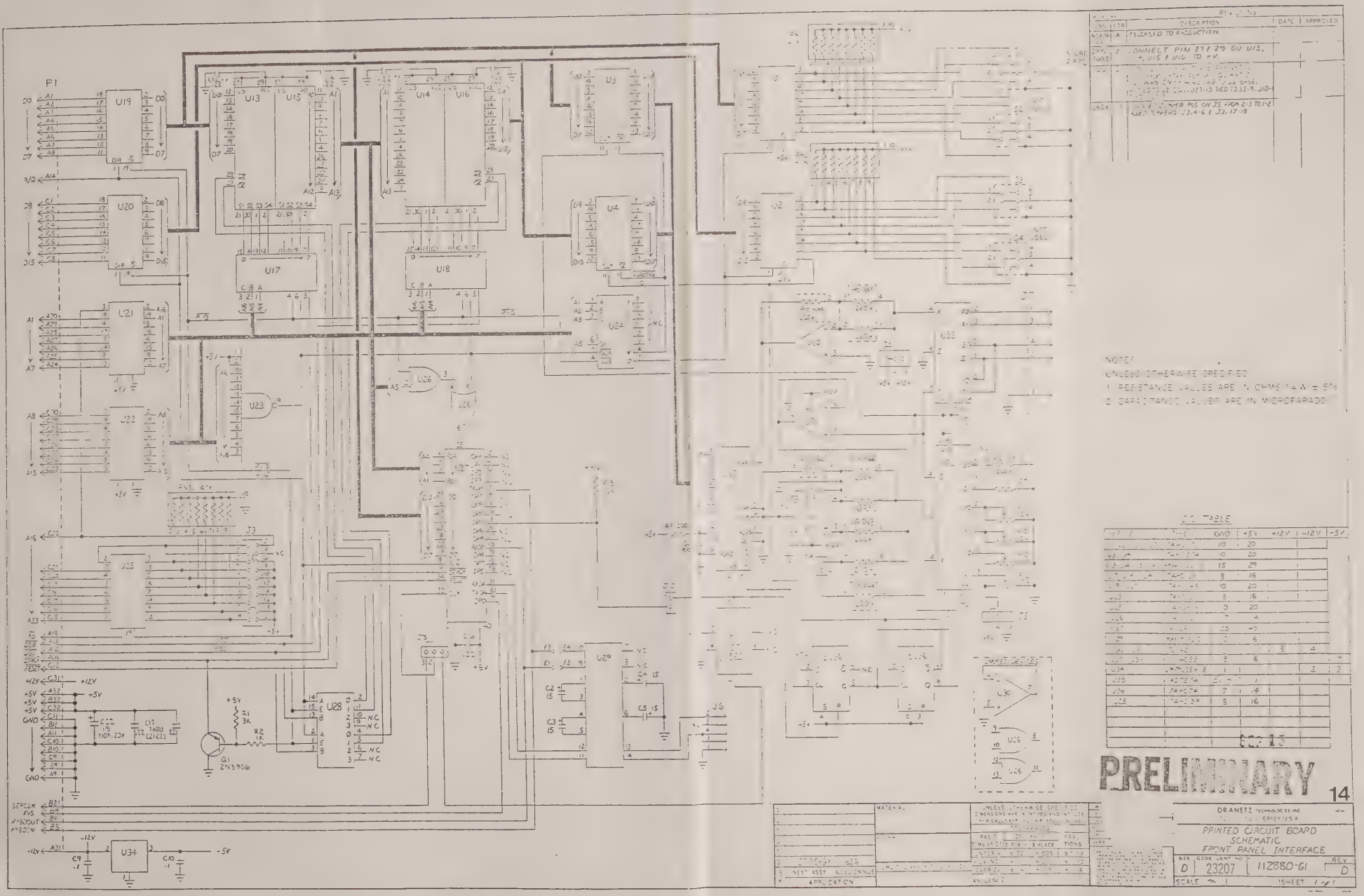
REVISIONS				
DRN	LTR	DESCRIPTION	DATE	APPROVED
2631	C	ADDED C11-C23 & R15. REMOVED C19 Q2. CHG'D KNOB & CAP FROM INDIVIDUAL PART CALLOUTS TO LM CALLOUTS. G1 WAS 104505		
2658	D	AMP SHUNT JUMPER 531220-1 WAS QTY. 2. ADDED THEM AT J3.4-6 & 17-18. J3 JUMPER WAS AT 1-2.		


IC SOCKET, 40 PIN
110749-G9
SOCKET STRIP, 15 PIN
113219-G1. (5 REQ'D)
USE 2 EACH @ U13 THRU U16.
P.CKT. BD (INCL. MRK.)
112876
SHUNT JUMPER
AMP 531220-1 (4 REQ'D)
INSTALL @ J3, 1-2, J3, 4-6 & 17-18, J8, 2-3.
.62
CUT SHAFT
OF S1, S3
DRANETZ FRONT PANEL/INTERFACE 112875-G1 MADE IN USA
LAY CG DOWN
AS SHOWN
A E C D E F G H J K L M N P R S T U V W X Y Z
COMPONENT SIDE
DENOTES "+" SIDE OF CAPACITORS
DENOTES PIN 1
CIRCLE LATEST REV LEVEL
USING PERMANENT INK.
MOVE PLASTIC HOUSING
TO DIM SHOWN.
.125
V.E.W. A-A

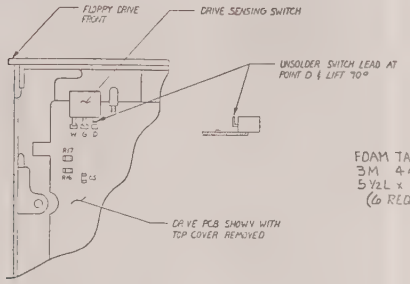
PRELIMINARY SEP 15

13

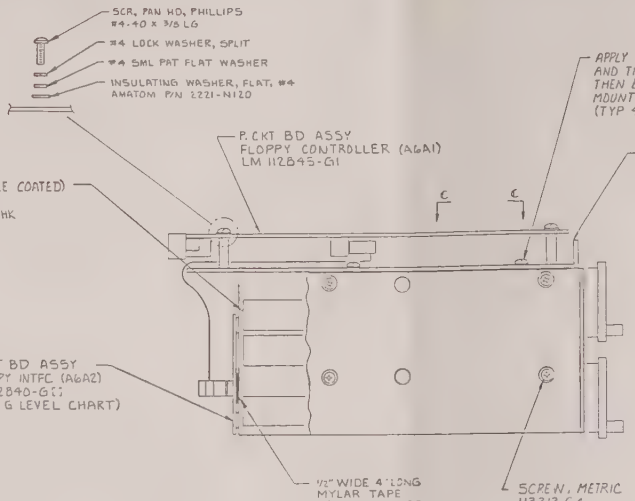
MATERIAL	UNLESS OTHERWISE SPECIFIED DIMENSIONS ARE IN INCHES AND INCLUDE CHEMICALLY APPLIED OR PLATED FINISHES		DRANETZ TECHNOLOGIES INC. EDISON, NEW JERSEY U.S.A.	
FINISH	TOLERANCES		PRINTED CIRCUIT BD ASSY FRONT PANEL INTERFACE	
	BASIC 1 DEC MALS FRAC		SIZE D	CODE IDENT NO 23207
	DIMENSION 2 PLACE 3 PLACE TOLS		112875-G1	REV D
	UNDER 6 ± .02 ± .005 ± 1/64		SCALE 2/1	SHEET 1 OF 1
	6 TO 24 INCL ± .03 ± .010 ± 1/32			
NEXT ASSY USED ON NO.	OVER 24 ± .06 - .015 ± 1/16			
APPLICATION	ANGLES ± 1°			

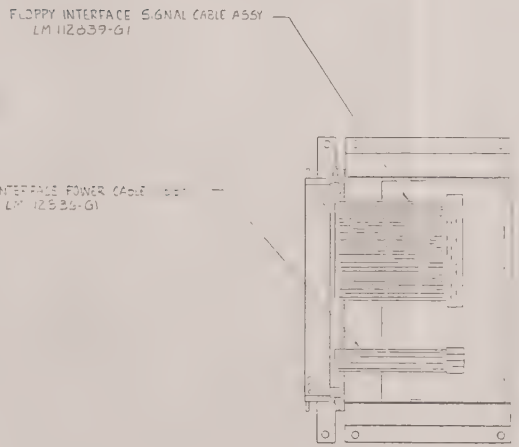

P1
U19
U13
U15
U14
U16
U3
U20
U17
U18
U4
U2
U21
U24
U26
U23
U22
U25
U27
U28
U29
U30
U31
U32
U33
U34
J3
Q1
2N3906
R1
3K
R2
1K
+5V
+12V
-12V
GND
NOTES:
UNLESS OTHERWISE SPECIFIED
1 RESISTANCE VALUES ARE IN OHMS 1/4 W ± 5%
2 CAPACITANCE VALUES ARE IN MICROFARADS
PRELIMINARY
DRANETZ TECHNOLOGIES INC
PRINTED CIRCUIT BOARD
SCHEMATIC
FRONT PANEL INTERFACE
112880-61
23207
D
14

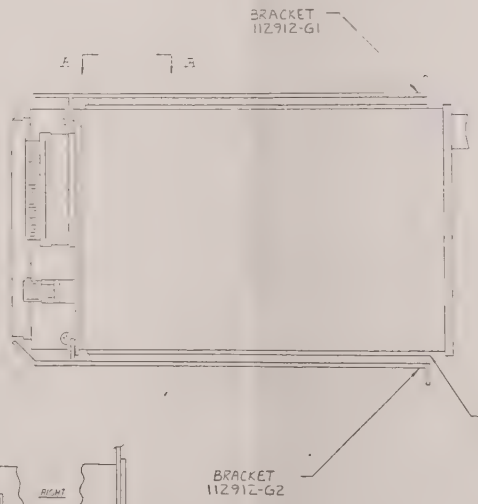
REVISIONS			
LTR	DESCRIPTION	DATE	APPROVED
A	RELEASED TO PRODUCTION		
B	ADDED THIS FLAT WASHER CHG: METRIC SCREW 113212-G4 WAS 113212-G2		
2658 C	ADDED DETAILS A-A, B-B, & C-C.		

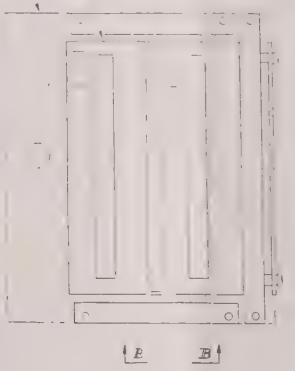


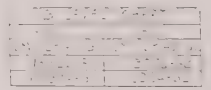
DETAIL C-C
(-G2 VERSION, TOSHIBA DRIVE)

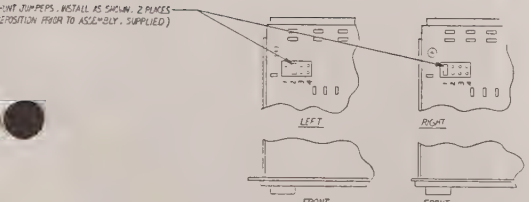

SCR, PAN HD, PHILLIPS #4-40 x 3/8 LG
#4 LOCK WASHER, SPLIT
#4 SML PAT FLAT WASHER
INSULATING WASHER, FLAT, #4 AMATOM P/N 2221-N120
APPLY LOC-TITE 290 TO SCREW THREADS AND TIGHTEN UNTIL SCREW IS SNUG THEN BACK OFF UNTIL FLOPPY DISC MOUNT BKT MOVES FREELY (TYP 4 PLACES)
P.CKT BD ASSY FLOPPY CONTROLLER (A6A1) LM 112895-G1
FLOPPY DISC MOUNT BKT 112914-G1
FOAM TAPE (DOUBLE COATED) 3M 4408 5 1/2L x 1/2W x .98THK (6 REQ'D)
P.CKT BD ASSY FLOPPY INTFC (A6A2) LM112840-G1 (SEE G LEVEL CHART)
1/2" WIDE 4" LONG MYLAR TAPE PERMACEL P255
SCREW, METRIC 113212-G4 (8 REQ'D)



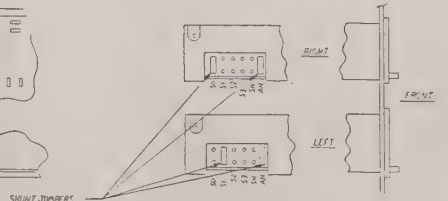








DETAIL B-B
(-G2 VERSION, TOSHIBA DRIVE)



DETAIL A-A
(-G1 VERSION, CANNON DRIVE)

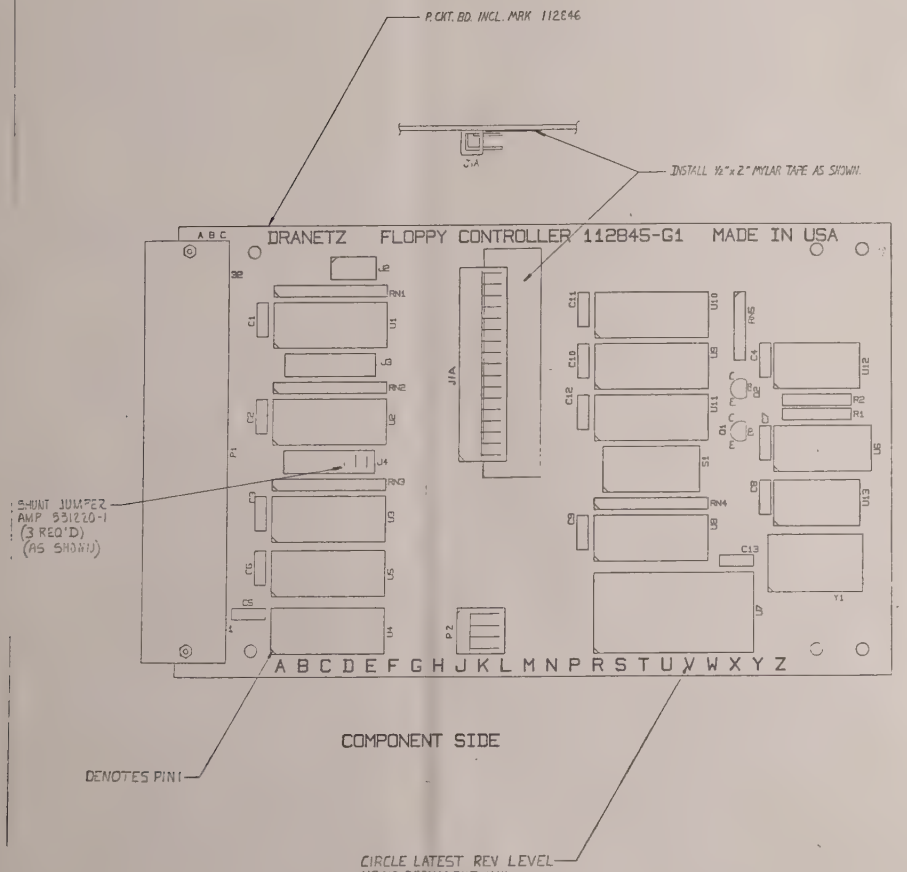
SEP 15

PRELIMINARY

15

MATERIAL	UNLESS OTHERWISE SPECIFIED DIMENSIONS ARE IN INCHES AND INCLUDE CHEMICAL, APPLIED OR PLATED FINISHES	DRANETZ TECHNOLOGIES INC EDISON, NEW JERSEY, U.S.A.	
FINISH	TOLERANCES	FLOPPY MAIN ASSY	
DO NOT SCALE THIS DRAWING	BASIC DIMENS ONS / FRACTIONS: UNDER 2 PLACE ±.02 ±1/64; 2 PLACE ±.03 ±1/32; 3 PLACE ±.01 ±1/16	SIZE D	CODE IDENT NO. 23207
NEXT ASSY LSED ON NO.	UNLESS APPLY TO SIX SIDES		DWG NO. 112911-G[ ] REV C
APPLICATION	ANGLES ±	SCALE 1/1	SHEET 1 OF 1

REVISIONS				
A ORIGINAL ISSUE				
DRN	LTR	DESCRIPTION	DATE	APPROVED
MICRO 2-87 NORM 101	A	RELEASE TO PRODUCTION		
ZW31	A1	REMOVED J5 OUTLINE. LAYSCH NOT AFFECTED.		
2658	B	ADDED MYLAR TAPE & SIDE VIEW.		

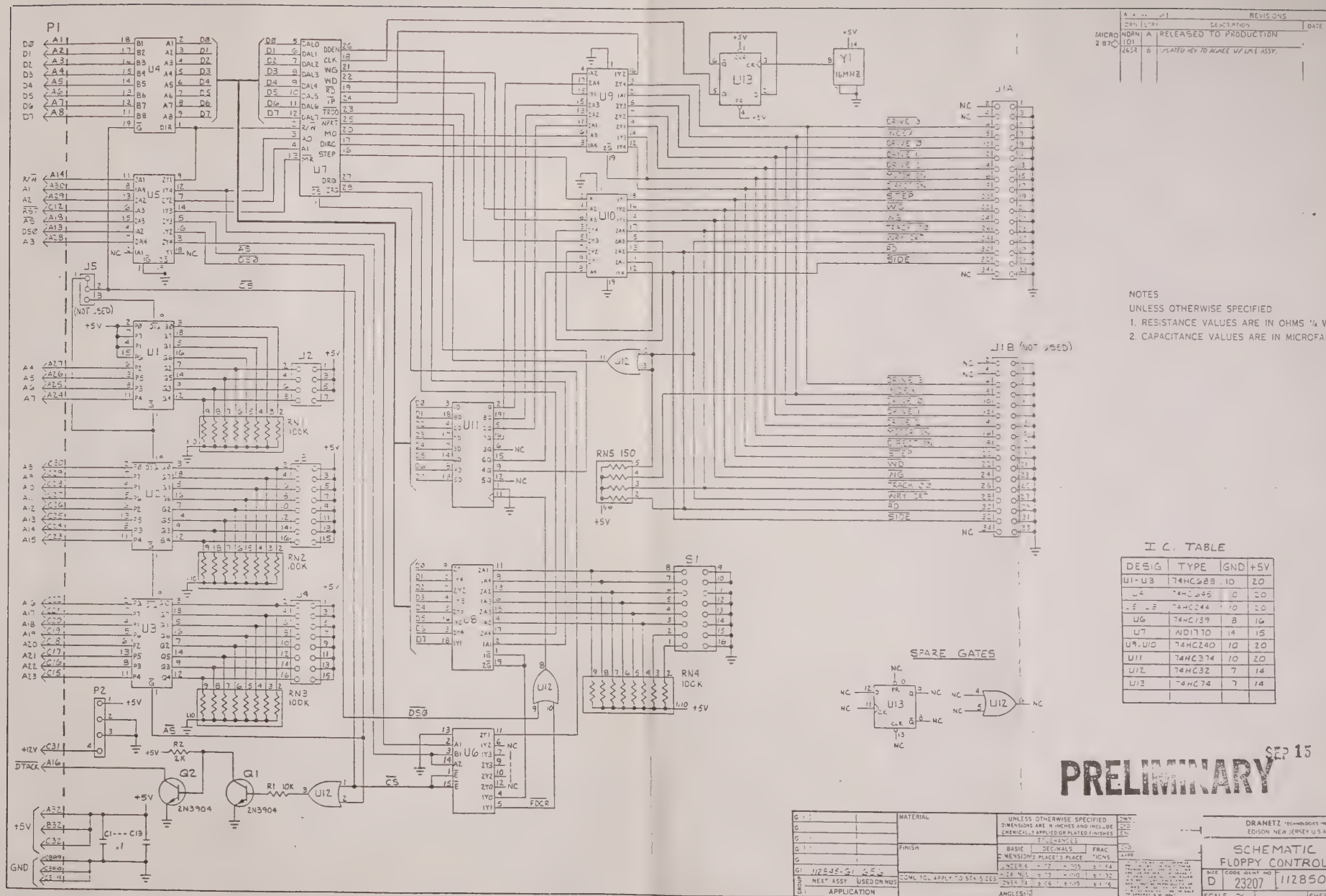

P.CKT. BD. INCL. MRK 112846
J1A
INSTALL ½" x 2" MYLAR TAPE AS SHOWN.
DRANETZ FLOPPY CONTROLLER 112845-G1 MADE IN USA
SHUNT JUMPER AMP 531220-1 (3 REQ'D) (AS SHOWN)
A B C D E F G H J K L M N P R S T U V W X Y Z
COMPONENT SIDE
DENOTES PIN 1
CIRCLE LATEST REV LEVEL USING PERMANENT INK.

SEP 15

PRELIMINARY

16

		MATERIAL	UNLESS OTHERWISE SPECIFIED DIMENSIONS ARE IN INCHES AND INCLUDE CHEMICALLY APPROPRIATE PLATED FINISHES		DRANETZ TECHNOLOGIES INC EDISON, NEW JERSEY, U.S.A.	44
		FINISH	TOLERANCES		PRINTED CIRCUIT BOARD ASSY. FLOPPY CONTROLLER	
			BASIC DIMENSION	DECIMALS 2 PLACE / 3 PLACE	FRACTIONS	
G1	112853-G1	GDW	UNDER 6	± .02 / ± .005	± 1/64	
	NEXT ASSY	USED ON NUS	6-24 INCL	± .03 / ± .010	± 1/32	SIZE D / CODE IDENT NO 23207 / 112845-G1 / REV B
ORDER	APPLICATION		OVER 24	± .06 / ± .015	± 1/16	SCALE 2/1 / SHEET 1 OF 1
		COML TOL APPLY TO STK SIZES	ANGLES ±			



I.C. TABLE

DESIG	TYPE	GND	+5V
U1-U3	74HC688	10	20
U4	74HC245	10	20
U5	74HC244	10	20
U6	74HC139	8	16
U7	NDI770	14	15
U9,U10	74HC240	10	20
U11	74HC374	10	20
U12	74HC32	7	14
U13	74HC74	7	14

MATERIAL	UNLESS OTHERWISE SPECIFIED DIMENSIONS ARE IN INCHES AND INCLUDE CHEMICALLY APPLIED OR PLATED FINISHES		
FINISH	TOLERANCES BASIC DIMENSIONS	DECIMALS PLACES	FRACTIONS
	UNDER 6	± .02	± 1/64
	OVER 6 TO 24	± .03	± 1/32
	OVER 24 TO 36	± .06	± 1/16
	ANGLES ± 1°		
COML TOL APPLY TO STAINLESS			
G1 112850-G1 265A			
NEXT ASSY USED ON NUS			
APPLICATION			

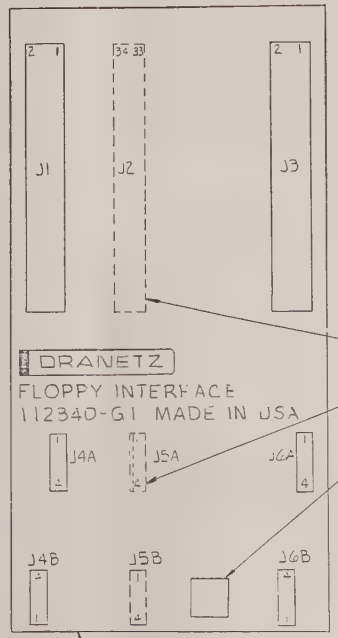
DRANETZ TECHNOLOGIES INC
EDISON NEW JERSEY U.S.A.

SCHEMATIC
FLOPPY CONTROLLER BD

SIZE	CODE IDENT NO	DWG NO	REV
D	23207	112850-G1	B

SCALE NONE | SHEET 1 OF 1

A ORIGINAL ISSUE	REVISIONS			
DRN	LTR	DESCRIPTION	DATE	APPROVED
MICRO 2-87 NDEV 101	A	RELEASED TO PRODUCTION		
2658	B	UPDATED REV. TO AGREE W/ LM.		



	-G1	G2
J4A	USED	NOT USED
J4B	NOT USED	USED
J5A	USED	NOT USED
J5B	NOT USED	USED
J6A	USED	NOT USED
J6B	NOT USED	USED

SEP 15

PRELIMINARY

18

G			MATERIAL —	UNLESS OTHERWISE SPECIFIED DIMENSIONS ARE IN INCHES AND INCLUDE CHEMICALLY APPLIED OR PLATED FINISHES			DWN	DRANETZ TECHNOLOGIES INC EDISON, NEW JERSEY U.S.A. 44
G				TOLERANCES			CKD	
G			FINISH —	BASIC DIMENSION	DECIMALS 2 PLACE	DECIMALS 3 PLACE	FRACTIONS	ENG
G				UNDER 6	± 02	± 005	± 1/64	PE
G1	112835-G1	656	COML TOL APPLY TO STK SIZES	6-24 INCL	± 03	± 010	± 1/32	CKD
GROUP	NEXT ASSY	USED ON NUS		OVER 24	± 06	± 015	± 1/16	APP
	APPLICATION			ANGLES= ½°				

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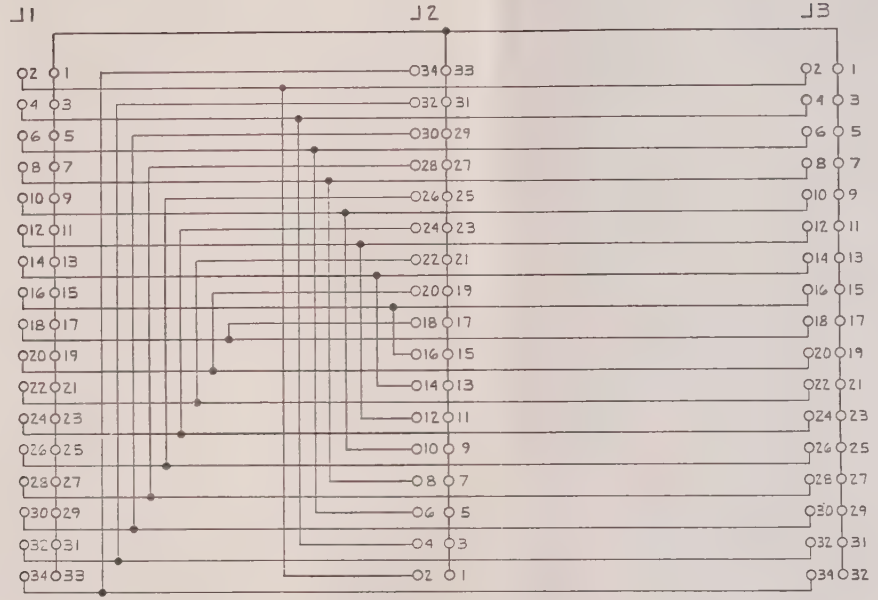
PRINTED CIRCUIT BD. ASSY FLOPPY INTERFACE

SIZE	CODE IDENT. NO		REV.
C	23207	112840-G1	B

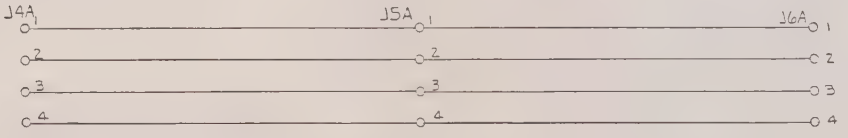
SCALE 2/1 SHEET 1 OF 1

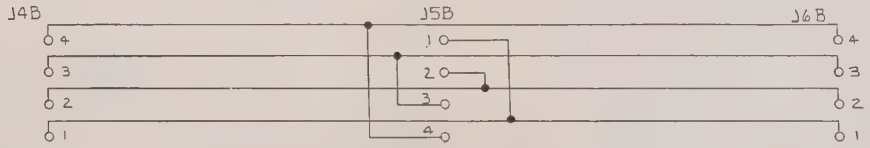
REVISIONS				
DRN	LTR	DESCRIPTION	DATE	APPROVED
NDCN 101	A	RELEASED TO PRODUCTION		
2698	B	UPDATED REV TO AGREE W/LM #ASSY.		

MICRO 2-87



	-G1	-G2
J4A	USED	NOT USED
J4B	NOT USED	USED
J5A	USED	NOT USED
J5B	NOT USED	USED
J6A	USED	NOT USED
J6B	NOT USED	USED





SEP 15

PRELIMINARY

19

G		MATERIAL	UNLESS OTHERWISE SPECIFIED DIMENSIONS ARE IN INCHES AND INCLUDE CHEMICALLY APPLIED OR PLATED FINISHES	DWN
G			TOLERANCES	CKD
G		FINISH	BASIC DIMENSION / DECIMALS 2 PLACE / 3 PLACE / FRACTIONS	ENG
G			UNDER 6 ± 02 ± 005 ± 1/64	PE
G1	112840-G1	COML TOL APPLY TO STK SIZES	6-24 INCL ± 03 ± 010 ± 1/32	CKD
GROUP	NEXT ASSY / USED ON NUS		OVER 24 ± 06 ± 015 ± 1/16	APP
	APPLICATION		ANGLES ± ½°	

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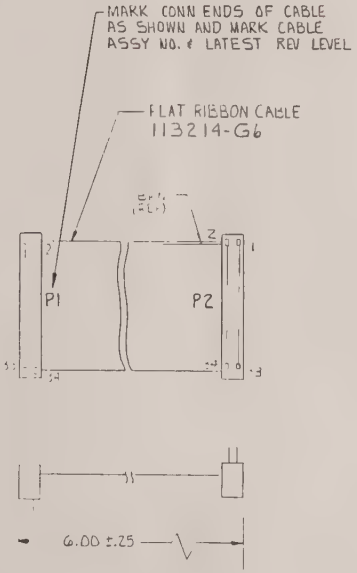
DRANETZ TECHNOLOGIES INC. #4
EDISON, NEW JERSEY U.S.A

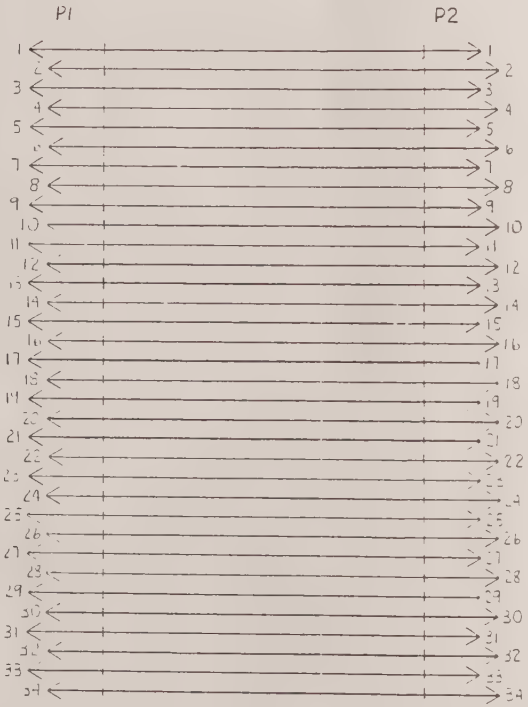
SCHEMATIC
FLOPPY INTERFACE

SIZE	CODE IDENT. NO.		REV.
C	23207	112844-G[ ]	B
SCALE X		SHEET 1 OF 1	

REVISIONS				
DRN	LTR	DESCRIPTION	DATE	APPROVED
NDRN 101	A	RELEASED TO PRODUCTION		

MICRO 2-87





SEP 15

PRELIMINARY

20

MATERIAL	UNLESS OTHERWISE SPECIFIED DIMENSIONS ARE IN INCHES AND INCLUDE CHEMICALLY APPLIED OR PLATED FINISHES		
FINISH	TOLERANCES		
	BASIC DIMENSIONS	DECIMALS 2 PLACE	DECIMALS 3 PLACE	FRACTIONS
	UNDER 6	± .02	± .005	± 1/64
	6 24 INCL	± .03	± .010	± 1/32
	OVER 24	± .06	± .015	± 1 16
	ANGLES ± 1			

GROUP		
G		
G		
G		
G		
G1	112839-G1	
NEXT ASSY	USED ON NUS	
APPLICATION		

COML TOL APPLY TO STK SIZES

DRANETZ TECHNOLOGIES INC
EDISON NEW JERSEY 115

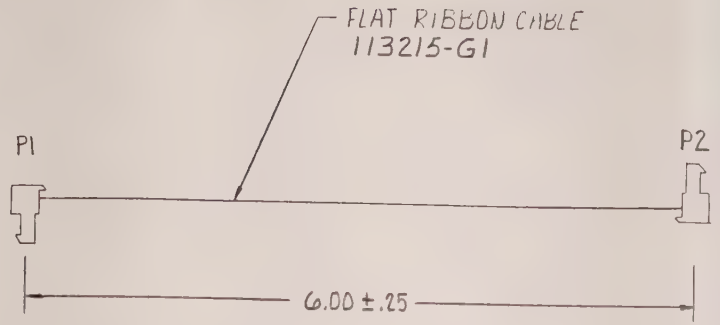
FLOPPY INTERFACE SIGNAL CABLE ASSY

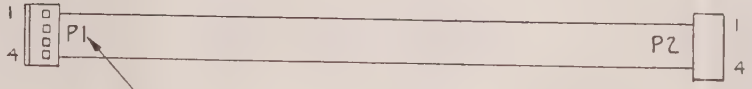
SIZE	CODE IDENT NO		REV
C	23207	112839-G1	A
SCALE ~		SHEET 1 OF 1	

FOLD

A ORIGINAL ISSUE	REVISIONS			
DRN	LTR	DESCRIPTION	DATE	APPROVED
NDRN 101	A	RELEASED TO PRODUCTION		

MICRO 2-87





MARK CONN ENDS OF CABLE AS SHOWN AND MARK CABLE ASSY NO. & LATEST REV LEVEL

P1		P2
1	BRN	1
2	RED	2
3	ORN	3
4	YEL	4

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PRELIMINARY

GROUP		NEXT ASSY	USED ON
G			
G			
G			
G			
G			
G1	112835-G1		
APPLICATION			

MATERIAL

FINISH

COML TOL APPLY TO STK SIZES

UNLESS OTHERWISE SPECIFIED DIMENSIONS ARE IN INCHES AND INCLUDE CHEMICALLY APPLIED OR PLATED FINISHES

TOLERANCES

BASIC DIMENSION	DECIMALS 2 PLACE	DECIMALS 3 PLACE	FRACTIONS
UNDER 6	± .02	± .005	± 1/64
6-24 INCL	± .03	± .010	± 1/32
OVER 24	± .06	± .015	± 1/16
ANGLES	± ½		

CONTR
DWN
CKD
APPD

DRANETZ ENGINEERING LABORATORIES INC
EDISON, NEW JERSEY U.S.A.

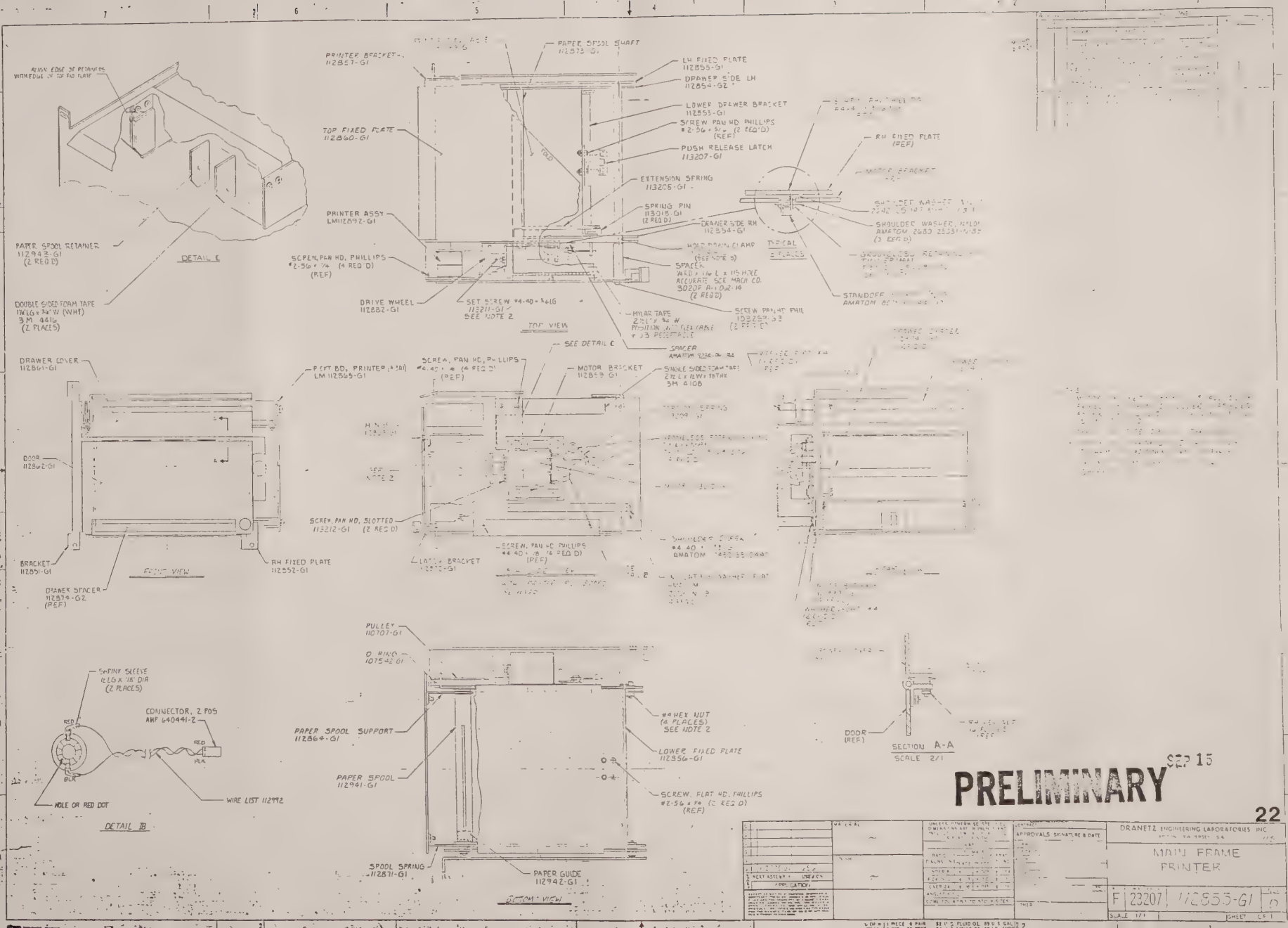
115

FLOPPY INTERFACE POWER CABLE ASSY

SIZE	CODE IDENT. NO.		REV.
B	23207	112836-G1	A
SCALE 1/1		SHEET 1 OF 1	

U OF M CODE | 1 PIECE 5 SET | 6 PAIR 32 FEET | 52 U. S. FLUID OZ. 55 U. S. GAL. 54 U. S. LIQUID QT. 68 LB., AVDP.

OOILVIE PRESS


ALIGN EDGE OF RETAINER WITH EDGE OF PAD FLAP
PAPER SPOOL RETAINER 112943-G1 (2 REQ'D)
DETAIL C
DOUBLE SIDED FOAM TAPE 1"W LG x 3/4"W (WHT) 3M 4416 (2 PLACES)
PRINTER BRACKET 112857-G1
PAPER SPOOL SHAFT 112873-G1
LH FIXED PLATE 112855-G1
DRAWER SIDE LH 112854-G2
LOWER DRAWER BRACKET 112853-G1
SCREW, PAN HD PHILLIPS #2-56 x 3/8" (2 REQ'D) (REF)
TOP FIXED PLATE 112860-G1
PUSH RELEASE LATCH 113207-G1
EXTENSION SPRING 113206-G1
PRINTER ASSY LM112897-G1
SPRING PIN 113018-G1 (2 REQ'D)
DRAWER SIDE RH 112854-G1
SCREW, PAN HD, PHILLIPS #2-56 x 1/4 (4 REQ'D) (REF)
HOLD DOWN CLAMP (SEE NOTE 3)
SPACER
DRIVE WHEEL 112882-G1
SET SCREW #4-40 x 3/16 113211-G1 SEE NOTE 2
TOP VIEW
MYLAR TAPE
SCREW, PAN HD PHIL 10B2S9-53 (2 REQ'D)
SPACER AMATOM
SEE DETAIL C
RH FIXED PLATE (REF)
MOTOR BRACKET
SHOULDER WASHER, NYLON AMATOM 2680 25231-4-02 (3 REQ'D)
TYPICAL 6 PLACES
STANDOFF AMATOM
DRAWER COVER 112861-G1
PCKT BD, PRINTER LM112865-G1
SCREW, PAN HD, PHILLIPS #4-40 x 1/4 (4 REQ'D) (REF)
MOTOR BRACKET 112859-G1
DOOR 112862-G1
SCREW, PAN HD, SLOTTED 113212-G1 (2 REQ'D)
BRACKET 112851-G1
FRONT VIEW
RH FIXED PLATE 112852-G1
DRAWER SPACER 112879-G2 (PEF)
SCREW, PAN HD PHILLIPS #4-40 x 3/8 (2 REQ'D) (REF)
SHOULDER SCREW #4-40 AMATOM
SHIELD WIRE 112992
SHRINK SLEEVE 1/2"LG x 1/8" DIA (2 PLACES)
CONNECTOR, 2 POS AMP 640441-2
RED
BLK
HOLE OR RED DOT
DETAIL B
PULLEY 110707-G1
O RING 107542-G1
#4 HEX NUT (4 PLACES) SEE NOTE 2
PAPER SPOOL SUPPORT 112864-G1
LOWER FIXED PLATE 112856-G1
PAPER SPOOL 112941-G1
SCREW, FLAT HD, PHILLIPS #2-56 x 1/4 (2 REQ'D) (REF)
SPOOL SPRING 112871-G1
PAPER GUIDE 112942-G1
BOTTOM VIEW
DOOR (REF)
SECTION A-A
SCALE 2/1

SEP 15

PRELIMINARY

22

			DRANETZ ENGINEERING LABORATORIES, INC.	
			MAIN FRAME PRINTER	
			F 23207	112855-G1	D
			SCALE 1/1	SHEET C-1

REVISIONS				
DRN	LTR	DESCRIPTION	DATE	APPROVED
MCRN 101	A	RELEASED TO PRODUCTION		
WJD3	B	J3 WAS ERP 3-551203-1		
2527	C	ADDED SIDE VIEW SHOWING J2 PIN #'S. ADDED E1-E4 & A1 DES-IGNATIONS.		
2651	D	C2 WAS 104-541 REMOVED R10 ADDED SIDE VIEW FOR SWITCHES S1 & S2, NOTE 1. R9 WAS RCR07G243 JZ70K		
2658	E	ADDED SOLDER LUG 1416-G & DETAIL B1-B1		

MICRO 2-87

PRINTED CKT. BD. INCL. MARKING 112866

DENOTES CATHODE

DRANETZ PRINTER 112865-G1 MADE IN USA

SWITCH CAP 113203-G1 (2 REQ'D)

SEE NOTE 1

NOTE
1. PUSH BUTTON SWIT'S S1 & S2 MUST BE SOLDERED FLUSH & @ RT. ANGLE TO P.C.B. SURFACE.

1/8"W x 1 3/4"L WIRE BRAID. BUTT SOLDER TO GND. PAD ON WIRING SIDE OF P.C.B. AS SHOWN.

PRINTER P.C.B (REF)

CLEAR SLEEVING 1/8"W x 1 3/4"L.

SOLDER LUG, H.H. SMITH 1416-G (FLATTEN LUG)

DETAIL B1-B1 (PRINTER GND. STRAP)

A B C D E F G H J K L M N P R S T U V W X Y Z

COMPONENT SIDE

DENOTES PIN 1

CIRCLE LATEST REV. LEVEL USING PERMANENT INK

JB PIN #'S (REF)

USE DOUBLE-SIDED FOAM TAPE UNDERNEATH J2 1/32 THK

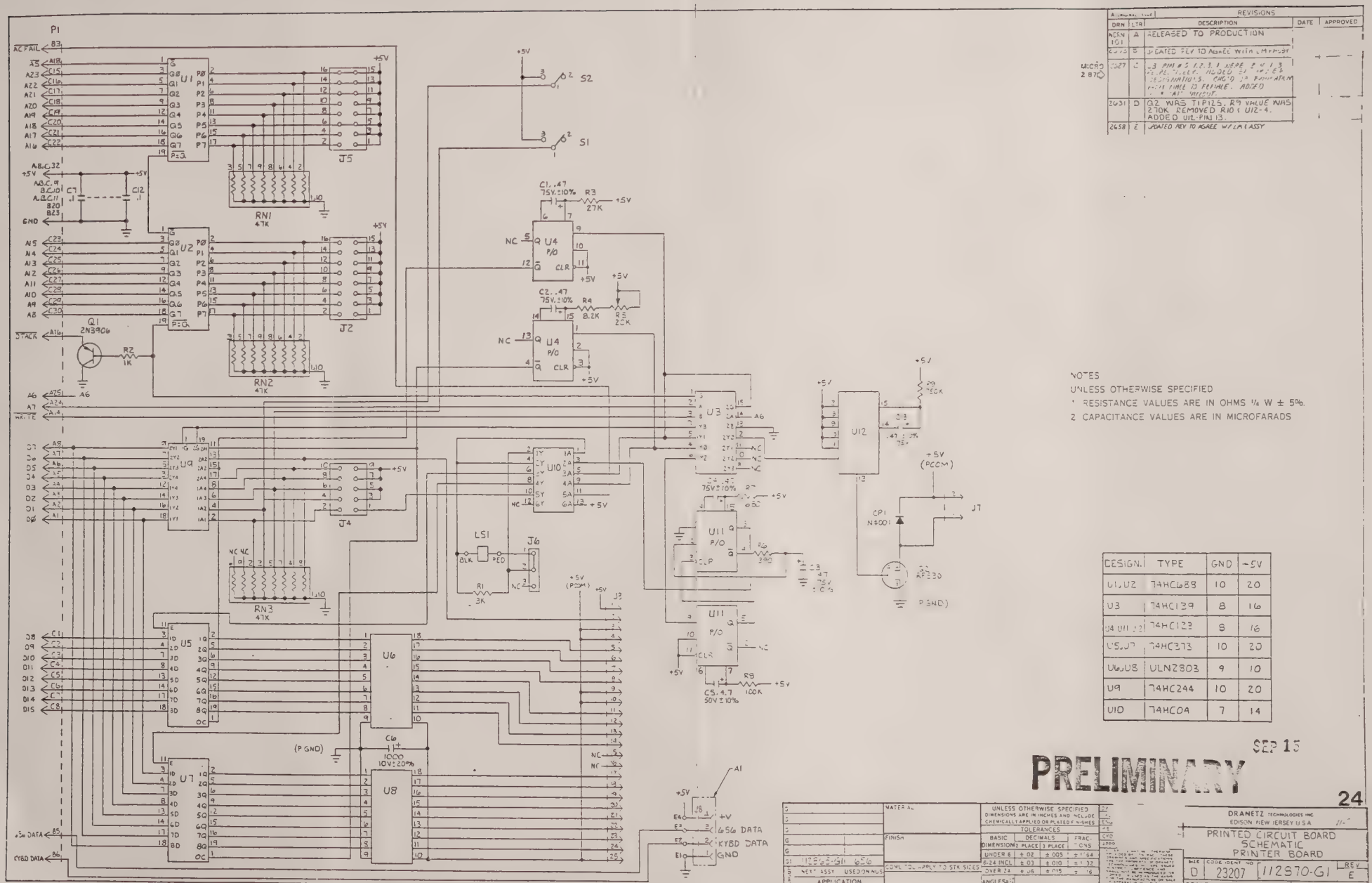
(A1) INSTALL BREAKAWAY BOARD WITH J3 CONN INTO SLOT AND SOLDER TABS AS SHOWN. (4 PLACES)

SEP 15

PRELIMINARY

23

G1			MATERIAL —	UNLESS OTHERWISE SPECIFIED DIMENSIONS ARE IN INCHES AND INCLUDE CHEMICALLY APPLIED OR PLATED FINISHES	DRANETZ TECHNOLOGIES INC. EDISON NEW JERSEY U.S.A.	115
G1			FINISH —	TOLERANCES: BASIC DIMENSION / DECIMALS 2 PLACE / 3 PLACE / FRACTIONS	PRINTED CIRCUIT BD ASSEMBLY PRINTER	
G1	112355-31	65D	COML TOL APPLY TO STK SIZES	UNDER 6: ± .02, ± .005, ± 1/64	SIZE 5	CODE IDENT NO 23207
G1	NEXT ASSY	USED ON NUS		6 24 INCL: ± .03, ± .010, ± 1/32	SCALE 3/4	SHEET 1 OF 1
Group	APPLICATION			OVER 24: ± .6, ± .015, ± 1/16		
				ANGLES: ±		



REVISIONS			
DRN	LTR	DESCRIPTION	DATE	APPROVED
ADEN 1011	A	RELEASED TO PRODUCTION		
[illegible]	B	UPDATED REV TO AGREE WITH LAYOUT		
2627	C	J3 PINS 1,2,3 & 4 WERE +V & J3 PINS 5,6,7 & 8 WERE 5V. CHANGED J3 TO J3,5,6 DESIGNATIONS. CHG'D J3 DESIGNATION FROM TABLE TO FRAME. ADDED "A" SUFFIX.		
2631	D	Q2 WAS TIP125, R9 VALUE WAS 270K. REMOVED R10 & U12-4. ADDED U12-PIN 13.		
2658	E	UPDATED REV TO AGREE W/ LA ASSY		

NOTES
UNLESS OTHERWISE SPECIFIED
1 RESISTANCE VALUES ARE IN OHMS 1/4 W ± 5%.
2 CAPACITANCE VALUES ARE IN MICROFARADS

DESIGN.	TYPE	GND	+5V
U1,U2	74HC688	10	20
U3	74HC139	8	16
U4 U11 U12	74HC123	8	16
U5,U7	74HC373	10	20
U6,U8	ULN2803	9	10
U9	74HC244	10	20
U10	74HC04	7	14

SEP 15

PRELIMINARY

24

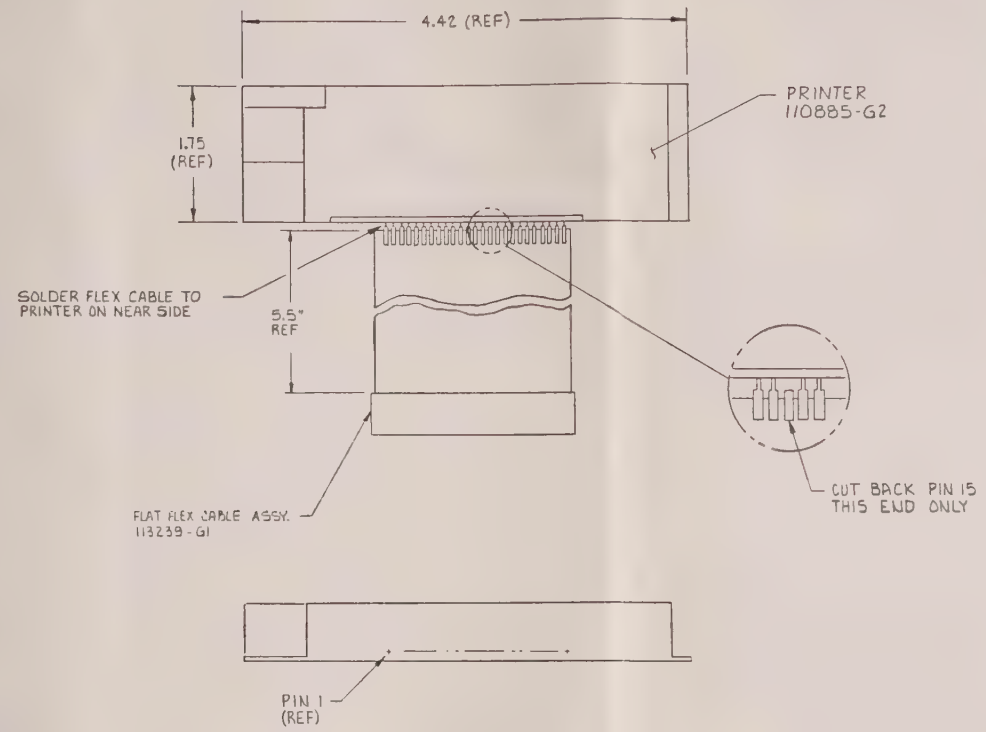
MATERIAL	UNLESS OTHERWISE SPECIFIED DIMENSIONS ARE IN INCHES AND INCLUDE CHEMICAL FILM APPLIED OR PLATED FINISHES				
	TOLERANCES				
FINISH	BASIC DIMENSIONS	DECIMALS 2 PLACE	DECIMALS 3 PLACE	FRACTIONS	
	UNDER 6	± .02	± .005	± 1/64	
	6 TO 24 INCL	± .03	± .010	± 1/32	
	OVER 24	± .06	± .015	± 1/16	
NEXT ASSY USED ON NUS	ANGLES ± 1°				
APPLICATION					

DRANETZ TECHNOLOGIES INC
EDISON NEW JERSEY U.S.A.

PRINTED CIRCUIT BOARD
SCHEMATIC
PRINTER BOARD

SIZE	CODE IDENT NO	DWG NO	REV
D	23207	112870-G1	E
SCALE		SHEET 2 OF	

A ORIGINAL ISSUE		REVISIONS		
DRN	LTR	DESCRIPTION	DATE	APPROVED
DRN 101	A	RELEASED TO PRODUCTION		
2603	B	FLAT FLEX CABLE ASSY. WAS CABLE JUMPER ASSY 2-86347-4.		



SEP 15

PRELIMINARY

25

GROUP	NEXT ASSEMBLY	USED ON
G		
G		
G		
G		
G		
G1	112855-G1	

APPLICATION

MATERIAL: X

FINISH: X

UNLESS OTHERWISE SPECIFIED DIMENSIONS ARE IN INCHES AND INCLUDE CHEMICALLY APPLIED OR PLATED FINISHES

TOLERANCES

BASIC DIMENSION	DECIMALS 2 PLACE	DECIMALS 3 PLACE	FRACTIONS
UNDER 6	± 02	± 005	± 1/64
6-24 INCL	± 03	± 010	± 1/32
OVER 24	± 06	± 015	± 1/16

ANGLES ± 1/2°

COML TOL APPLY TO STOCK SIZES

CONTRACT

APPROVALS SIGNATURE & DATE

DWN

CKD

ENG

P E

CKE

APP

DEL

CAL SOURCE

OTHER

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DRANETZ TECHNOLOGIES INC.
EDISON, NEW JERSEY U.S.A.

PRINTER ASSY

SIZE	CODE IDENT NO		REV
C	23207	112892-G1	B

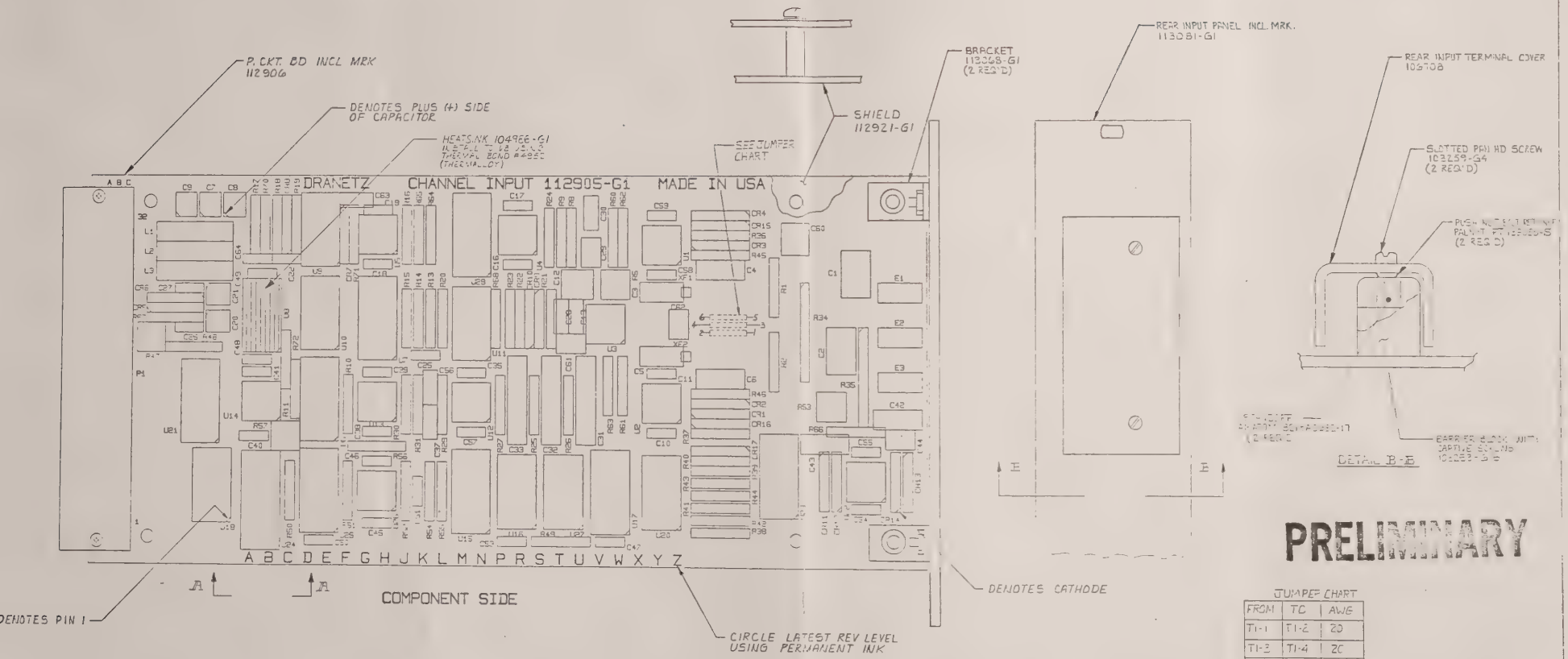
SCALE

SHEET 1 OF 1

U OF M | 1 PIECE .6 PAIR 32 FEET | 52 U. S. FLUID OZ. 55 U. S. GAL.
CODE | 5 SET 20 REF DOC | 54 U. S. LIQUID QT. 68 LB., AVDP.

REVISIONS				
DRN	LTR	DESCRIPTION	DATE	APPROVED
NORM 101	A	RELEASE TO PRODUCTION		
2363	B	CH 2307 & 2313 WERE 104181-G1		
6223	C	REMOVED .625 REF DIM. BRACKET 113068-G1 WAS 112794-G1. ADDED REAR PANEL 113081-G1 & DETAIL B-B.		
2431		ADDED: THERMAL BOND #4952 (THERMALLOY) TO U8. CHG: R32 WAS 4.02K (RN55C4021F)		
2450	D	ADDED "CAPTIVE SCREWS" TO BARRIER BLOCK DESCRIPTION & CHG'D PART NO. FROM A2304103-L1 TO SPEC # 103253-G15		

MICRO 28


P. CKT. BD INCL MRK 112906
DENOTES PLUS (+) SIDE OF CAPACITOR
HEATSINK 104966-G1 USE P/L 112 (2 REQ'D) THERMAL BOND #2951 (THERMALLOY)
SEE JUMPER CHART
SHIELD 112921-G1
BRACKET 113068-G1 (2 REQ'D)
REAR INPUT PANEL INCL MRK. 113081-G1
REAR INPUT TERMINAL COVER 104708
SLOTTED PAN HD SCREW 103259-G4 (2 REQ'D)
PUSH NUT FASTENER PALNUT PT12SU6-S (2 REQ'D)
BARRIER BLOCK WITH CAPTIVE SCREWS 103253-G15
DETAIL B-B
DRANETZ CHANNEL INPUT 112905-G1 MADE IN USA
A B C D E F G H J K L M N P R S T U V W X Y Z
COMPONENT SIDE
DENOTES PIN 1
DENOTES CATHODE
CIRCLE LATEST REV LEVEL USING PERMANENT INK

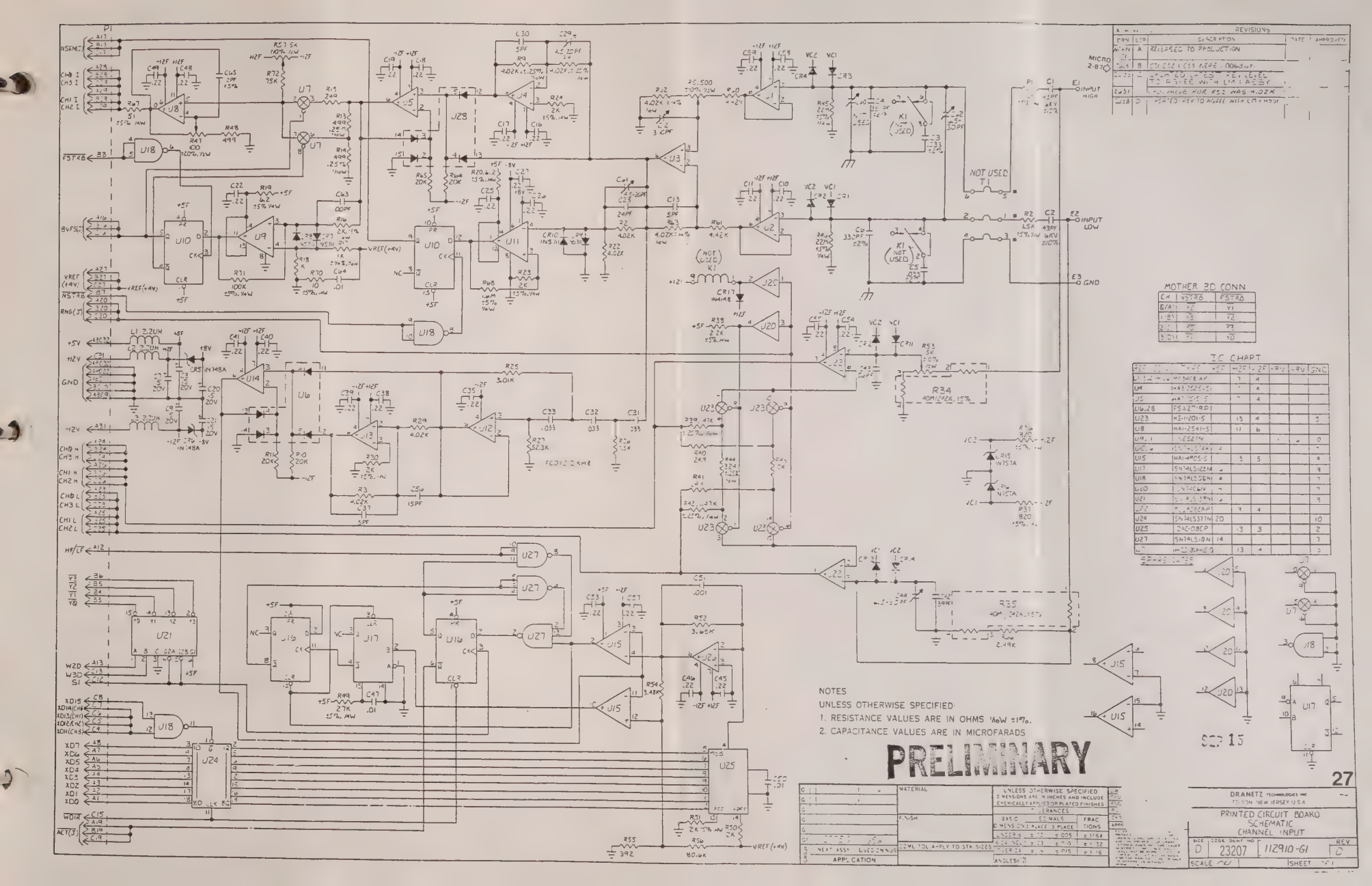
PRELIMINARY

JUMPER CHART

FROM	TO	AWG
T1-1	T1-2	20
T1-3	T1-4	20
T1-5	T1-6	20

SEP 15

G		MATERIAL	UNLESS OTHERWISE SPECIFIED DIMENSIONS ARE IN INCHES AND INCLUDE CHEMICALLY APPLIED OR PLATED FINISHES	DRANETZ TECHNOLOGIES INC EDISON, NEW JERSEY U.S.A.	
G		FINISH	TOLERANCES: BASIC DIMENSION; DEC MLS 2 PLACE ± .02, 3 PLACE ± .005; FRACTIONS ± 1/64; ANGLES ± 1°	PRINTED CIRCUIT BOARD ASSEMBLY CHANNEL INPUT	
G				SIZE D; CODE IDENT NO 23207; 112905-G1; REV D	
G				SCALE 2/1; SHEET 1 OF 1	
G1	112775-G1	G656	COML TOL APPLY TO STA SIZES		
GROUP	NEXT ASSY	USED ON NUS			
	APPLICATION				



REVISIONS

LTR	DESCRIPTION	DATE	APPROVED
A	RELEASED TO PRODUCTION		
B	CHANGE C53 FROM .0068uF TO A-TEE WITH LM143BY		
C	CHANGED FOR R52 WAS 4.02K		
D	CREATED KEY TO AGREE WITH LM143BY		

MOTHER 2D CONN

CH	VSTRB	FSTRB
0/A	Y3	Y1
1/B	Y3	Y2
2/C	Y3	Y3
3/D	Y3	Y0

IC CHART

SOCKET	TYPE	+12V	+5V	-12V	GND
L1,2	MC3403P	7	4		
U4	HA3-2605-5	7	4		
U5	HA-2605-5	7	4		
U6,28	FS22-9P1				
U23	HI-1201-5	13	4		5
U8	HA1-2541-5	11	6		
U9, 1	LF351N	7		4	0
U10, 12	1/2 DM74LS74AN	14			7
U15	HA1-4605-5	3	5		4
U17	SN74LS123N				9
U18	SN74LS00N	4			7
U20	SN74LS20N	4			7
U21	SN74LS139N	4			8
U22	MC4328AP	9	4		
U24	SN74LS373N	20			10
U25	DAC-08CP	13	3		2
U27	SN74LS10N	14			7
U7	LM339N	13	4		3

NOTES
UNLESS OTHERWISE SPECIFIED:
1. RESISTANCE VALUES ARE IN OHMS 1/6W ±1%.
2. CAPACITANCE VALUES ARE IN MICROFARADS

PRELIMINARY

SEP 15

27

MATERIAL	UNLESS OTHERWISE SPECIFIED DIMENSIONS ARE IN INCHES AND INCLUDE CHEMICALLY APPLIED OR PLATED FINISHES		
FINISH	TOLERANCES		
	BASIC DIMENSIONS	DECIMALS PLACE	FRACTIONS
	ANGLES ±	± .005	± 1/64
	OVER 24	± .010	± 1/32
NEXT ASSY USED ON	OVER 24	± .015	± 1/16
APPLICATION	ANGLES ±		

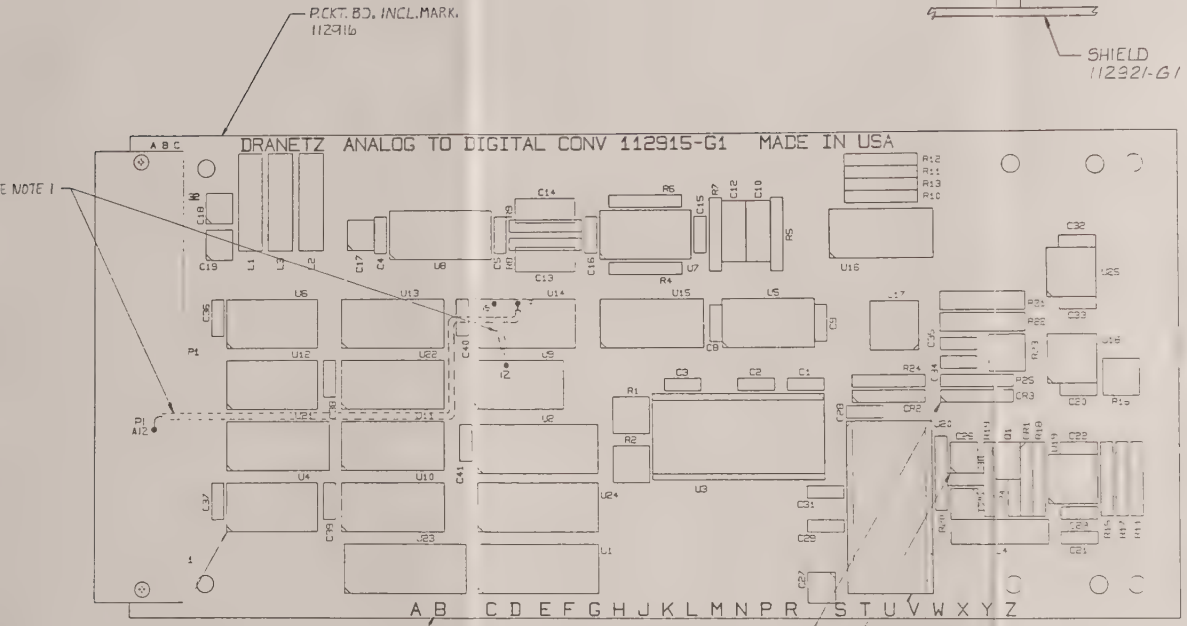
DRANETZ TECHNOLOGIES INC
EDISON, NEW JERSEY U.S.A.

PRINTED CIRCUIT BOARD
SCHEMATIC
CHANNEL INPUT

SIZE	CAGE PART NO.	REV
D	23207	112910-G1 C

SCALE NONE | SHEET 1 OF 1

REVISIONS				
A ORIGINAL ISSUE				
ORN	LTR	DESCRIPTION	DATE	APPROVED
MICRO 2-87	A	RELEASED TO PRODUCTION		
2-87	B	CHANGE: NOTE 1 WAS "ADD 22AWG WIRE FROM U14-15 TO U9-12 AND FROM U14-13 TO P1-A.2."		


P.CKT. BD. INCL. MARK. 112916
DRANETZ ANALOG TO DIGITAL CONV 112915-G1 MADE IN USA
A B C
E NOTE 1
P1 A12
A B C D E F G H J K L M N P R S T U V W X Y Z
DENOTES PIN 1
COMPONENT SIDE
CIRCLE LATEST REV LEVEL USING PERMANENT INK
DENOTES CATHODE
DENOTES PLUS (+) SIDE OF CAPACITORS
IC SOCKET 28 PIN 110744-68 (2 REQD) @ U3 & U20

NOTES:
1. INSTALL 26 AWG WIRE, GRN, KYNAR FROM U14-15 TO U9-12 AND FROM U14-13 TO P1-A12. ROUTE WIRES ON WIRING SIDE SUCH THAT THEY DO NOT LAY ON ANY COMPONENT LEADS.

PRELIMINARY

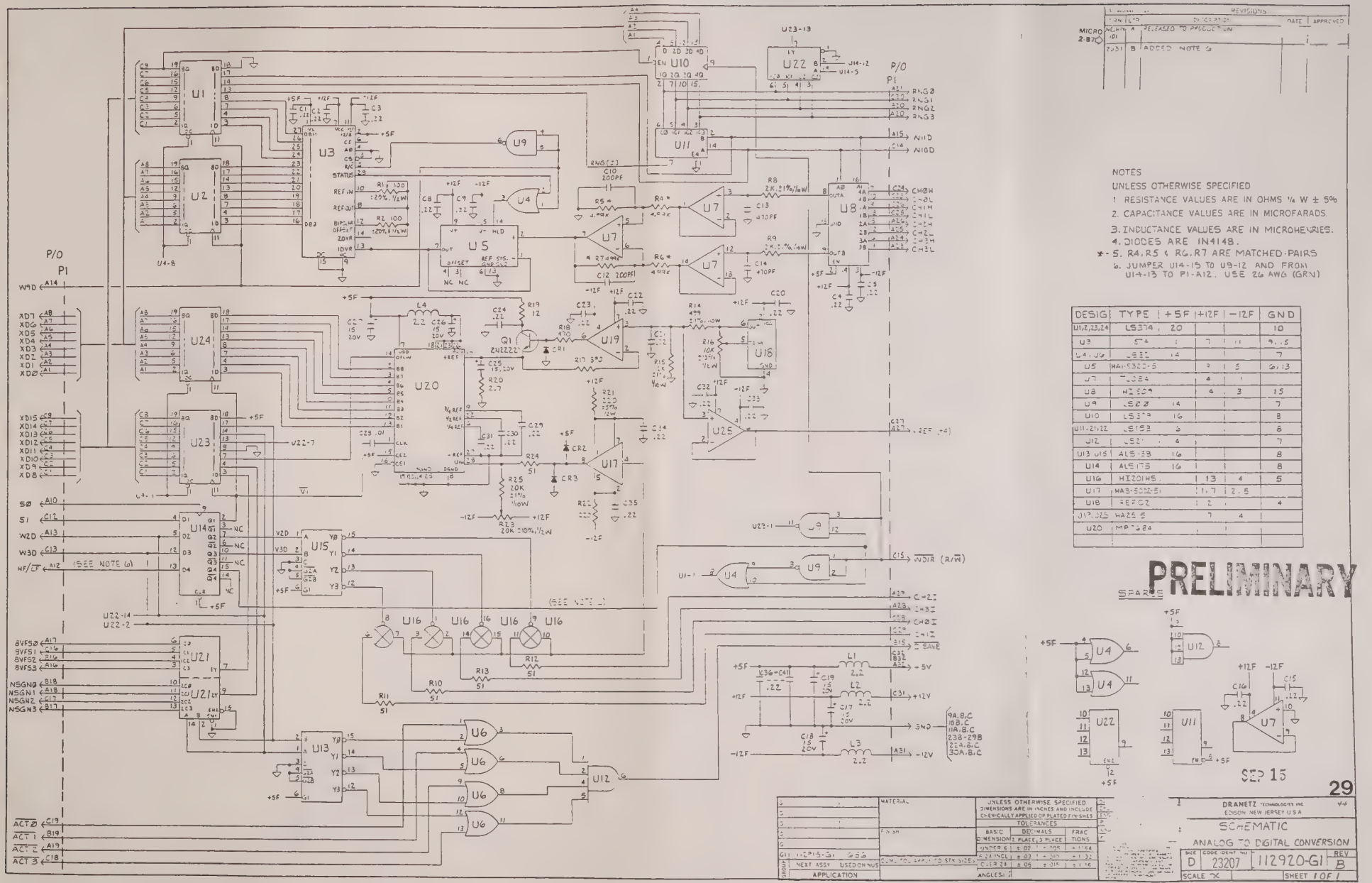
SEP 15

MATERIAL	UNLESS OTHERWISE SPECIFIED DIMENSIONS ARE IN INCHES AND INCLUDE CHEMICAL & APPLIED OR PLATED FINISHES			DRAWN
FINISH	TOLERANCES	BASIC DIMENSION	DECIMALS 2 PLACE	DECIMALS 3 PLACE	FRACTIONS
		UNDER 6	± .02	± .005	± 1/64
COML TOL APPLY TO STK SIZES		6-24 INCL	± .03	± .010	± 1/32
		OVER 24	± .06	± .015	± 1/16
		ANGLES ±			
NEXT ASSY	USED ON NUS				
APPLICATION					

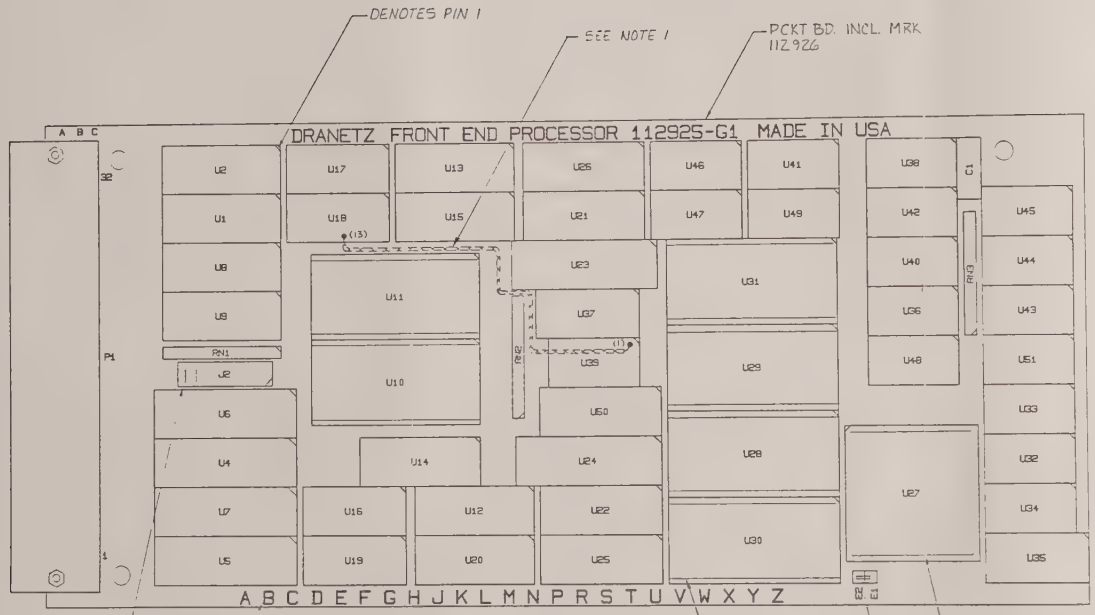
DRANETZ TECHNOLOGIES INC
EDISON, NEW JERSEY U.S.A.

PRINTED CIRCUIT BOARD ASSY, A/D CONVERSION

SIZE	CODE IDENT NO		REV
D	23207	112915-G1	B


REVISIONS
DESCRIPTION
DATE
APPROVED
MICRO 2-87
RELEASED TO PRODUCTION
ADDED NOTE 6
NOTES
UNLESS OTHERWISE SPECIFIED
1 RESISTANCE VALUES ARE IN OHMS 1/4 W ± 5%
2. CAPACITANCE VALUES ARE IN MICROFARADS.
3. INDUCTANCE VALUES ARE IN MICROHENRIES.
4. DIODES ARE IN4148.
*- 5. R4,R5 & R6,R7 ARE MATCHED PAIRS
6. JUMPER U14-15 TO U9-12 AND FROM U14-13 TO P1-A12. USE 26 AWG (GRN)
DESIG | TYPE | +5F | +12F | -12F | GND
U1,2,23,24 | LS374 | 20 | | | 10
U3 | 574 | 1 | 7 | 11 | 9,15
U4,U6 | LS32 | 14 | | | 7
U5 | HAS-9320-5 | | 2 | 5 | 6,13
U7 | LU584 | | 4 | 1 |
U8 | HI509 | | 6 | 3 | 15
U9 | LS08 | 14 | | | 7
U10 | LS374 | 16 | | | 8
U11,21,22 | LS153 | 6 | | | 8
U12 | LS21 | 4 | | | 7
U13 U15 | ALS138 | 16 | | | 8
U14 | ALS175 | 16 | | | 8
U16 | HI201HS | | 13 | 4 | 5
U17 | MAB-8502-5 | | 1,7 | 2,5 |
U18 | REF02 | | 2 | | 4
U19,U25 | HA2525 | | 7 | 4 |
U20 | MP7684 | | | |
PRELIMINARY
SEP 15
29
MATERIAL
UNLESS OTHERWISE SPECIFIED DIMENSIONS ARE IN INCHES AND INCLUDE CHEMICALLY APPLIED OR PLATED FINISHES
TOLERANCES
BASIC DIMENSIONS | DECIMALS PLACE | FRACTIONS
UNDER 6 | ± .02 | 1 - 32
6 TO 24 INCL | ± .03 | 1 - 64
OVER 24 | ± .06 | ± 1/16
ANGLES ± 1°
112915-G1 658
NEXT ASSY USED ON
APPLICATION
DRANETZ TECHNOLOGIES INC
EDISON, NEW JERSEY U.S.A.
SCHEMATIC
ANALOG TO DIGITAL CONVERSION
SIZE D
CODE IDENT NO 23207
112920-G1
REV B
SCALE X
SHEET 1 OF 1

LTR	DESCRIPTION	DATE	APPROVED
A	RELEASED TO PRODUCTION		
B	ADDED NOTE 1. CHANGE: 104733-G9 WAS 104733-G6		

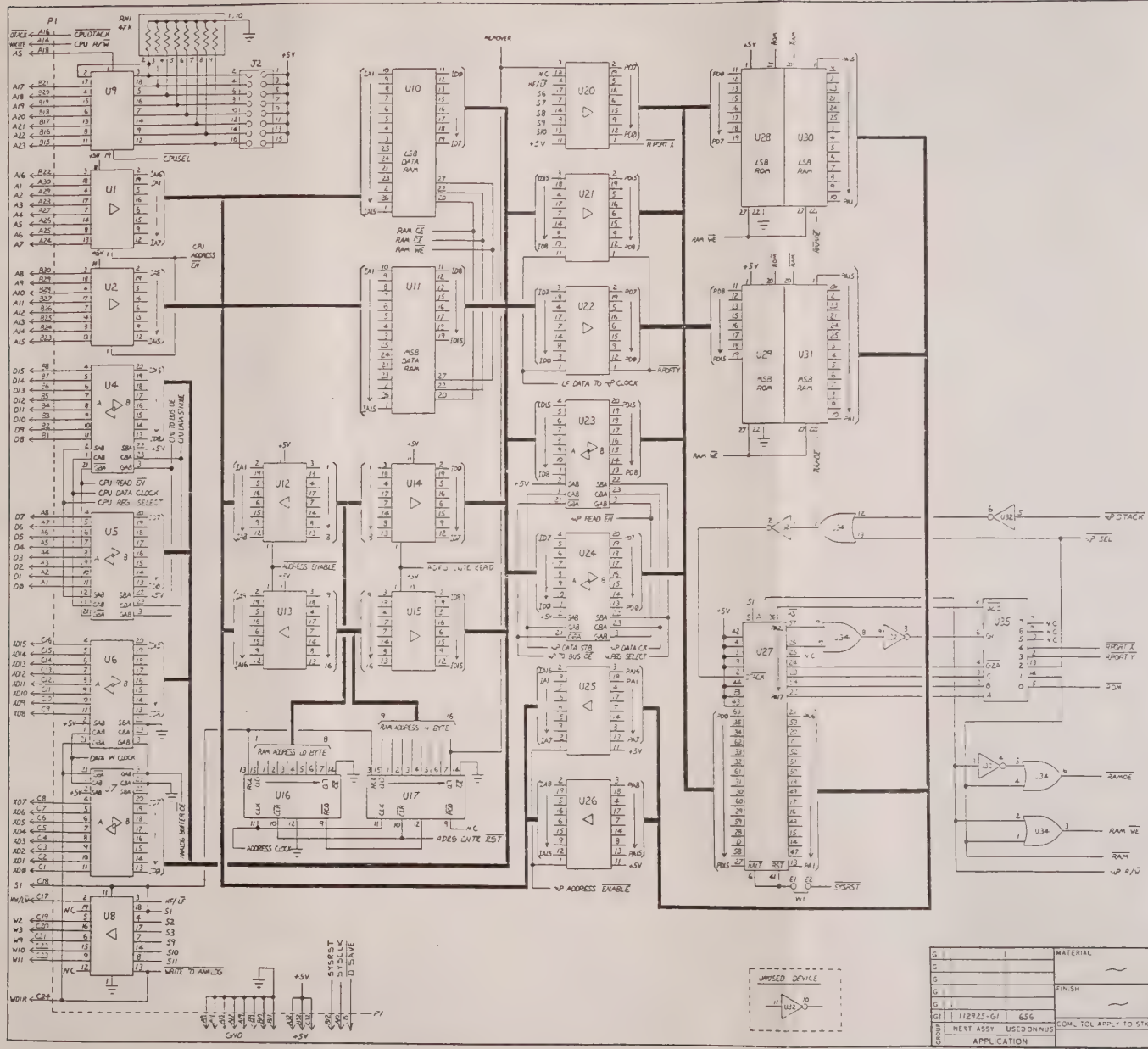

DENOTES PIN 1
SEE NOTE 1
PCKT BD. INCL. MRK 112926
DRANETZ FRONT END PROCESSOR 112925-G1 MADE IN USA
A B C
A B C D E F G H J K L M N P R S T U V W X Y Z
COMPONENT SIDE
SHUNT JUMPER 531220-1 (2 REQ'D)
CIRCLE LATEST REV LEVEL USING PERMANENT INK
IC SOCKET 64 PIN @ U27 113223-G1
PREFORMED JUMPER (W1) 110891-G2
IC SOCKET 28 PIN (6 REQ'D) @ U16 ... U25-U31 113225-G1

NOTES
1. INSTALL 26 AWG, GRN, KYNAR WIRE FROM U18 PIN 13 TO U39 PIN 1. ROUTE AS SHOWN ON WIRING SIDE OF BOARD. DO NOT ROUTE OVER ANY COMPONENT PINS.

PRELIMINARY SEP 15

30

MATERIAL	—	UNLESS OTHERWISE SPECIFIED DIMENSIONS ARE IN INCHES AND INCLUDE CHEMICALLY APPLIED OR PLATED FINISHES		DWN	DRANETZ TECHNOLOGIES INC. EDISON NEW JERSEY U.S.A. 44
FINISH	—	TOLERANCES		CKD	
		BASIC DIMENSIONS	DECIMALS 2 PLACE / 3 PLACE	FRACTIONS	ENG
		UNDER 6	± .02 / ± .005	± 1/64	PE
		6-24 INCL	± .03 / ± .010	± 1/32	CAD
COML TOL APPLY TO STK SIZES		OVER 24	± .06 / ± .015	± 1/16	APPR
		ANGLES ± ½°			PRINTED CIRCUIT BOARD ASSY FRONT END PROCESSOR
G1	117775-31	G56			SIZE D / CODE IDENT NO 23207 / 112925-G1 / REV B
NEXT ASSY	USED ON NUS				SCALE 4/1 / SHEET 1 OF 1
APPLICATION					



REVISIONS			
DRN	DESCRIPTION	DATE	APPROVED
2431	REDRAWN WAS ONE SHEET; ALSO U39 PIN 1 WAS CONNECTED TO FUNCTION "SI".		

NOTES
UNLESS OTHERWISE SPECIFIED:
1. RESISTANCE VALUES ARE IN OHMS ¼ W ± 5%
2 CAPACITANCE VALUES ARE IN MICROFARADS

I.C. TABLE

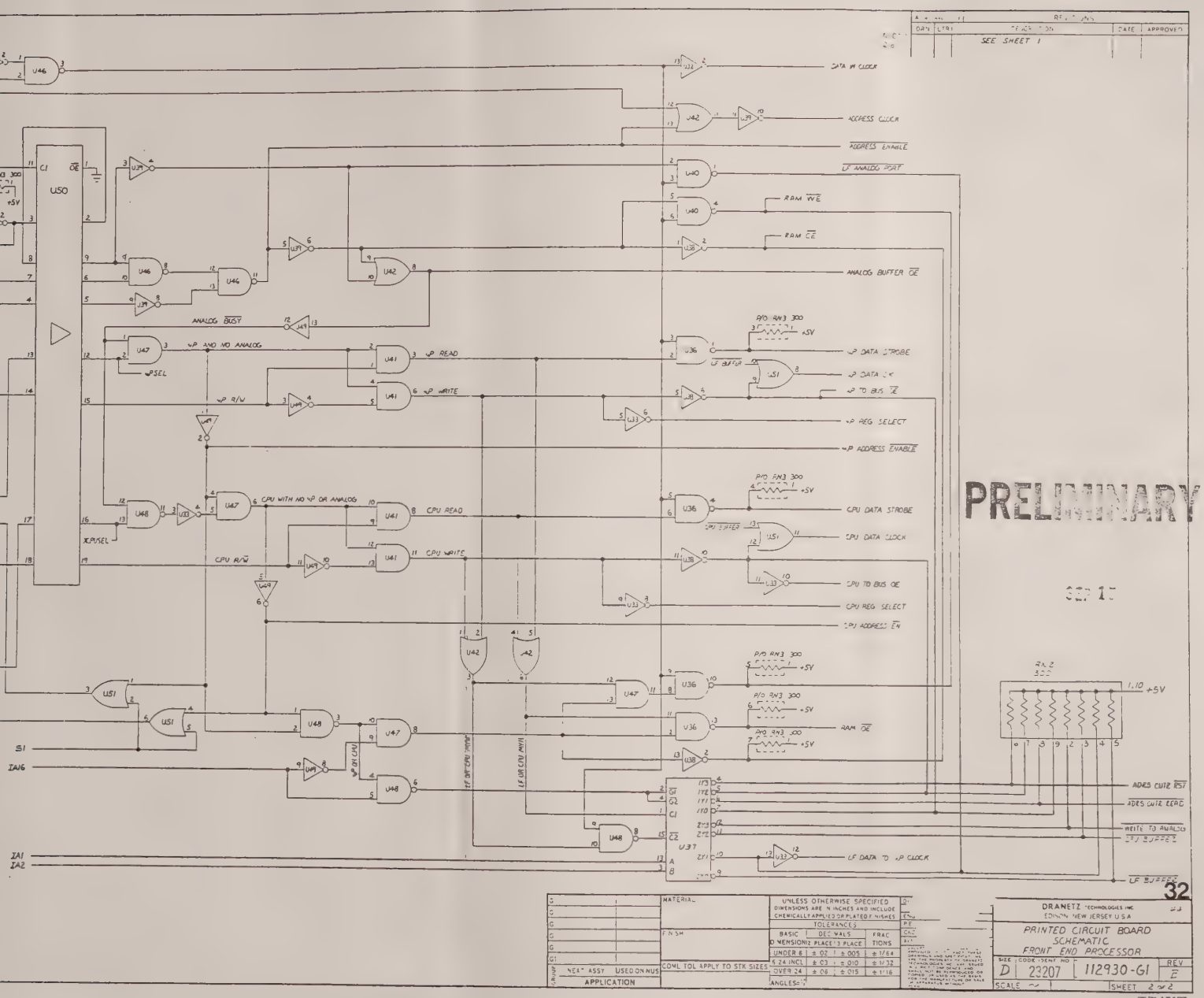
REF DESIG	TYPE	+5V	GND
U1, U2, U12, U13, U14, U15, U20, U25, U26	74HC373	20	10
U4, U5, U6, U7, U23, U24	74LS652	24	12
U9	74HC688	20	10
U10, U11, U30, U31	6M65256	28	14
U16, U17, U18, U19	74LS670	16	8
U27	M68000	39 55	40 56
U29, U29	2764	28	14
U32, U39, U45	74HC04	14	7
U34, U51	74HC32	14	7
U35	74HC138	16	8
U36, U40	74LS01	14	7
U37	74HC86	6	8
U38	74HC05	14	7
U43	74HC08	14	7
U44	74HC74	14	7
U46, U48	74AS30	14	7
U8, U50	74LS374	20	10
U21, U22	74HC374	20	10
U41, U47	74AS08	14	7
U42	74AS32	14	7
U49, U33	74AS04	14	7

PRELIMINARY

SEP 15

31

MATERIAL	UNLESS OTHERWISE SPECIFIED DIMENSIONS ARE IN INCHES AND INCLUDE CHEMICALLY APPLIED OR PLATED FINISHES	DRAWN	DRANETZ TECHNOLOGIES INC EDISON NEW JERSEY U.S.A.
FINISH	TOLERANCES	CHKD	PRINTED CIRCUIT BOARD SCHEMATIC FRONT END PROCESSOR
G1 112925-G1 656	BASIC DECIMALS ± .05 / 2 PLACE ± .01 / FRACTIONS ± 1/64	ENG APPR	SIZE D / CODE IDENT NO 23207 / 112930-G1 / REV B
NEXT ASSY USED ON NUS	ANGLES ± 1°	MFG APPR	SCALE — / SHEET 1 OF 2
APPLICATION	COM'L TOL APPLY TO STK SIZES		



PRELIMINARY

SEE 1

32

MATERIAL	UNLESS OTHERWISE SPECIFIED DIMENSIONS ARE IN INCHES AND INCLUDE CHEMICALLY APPLIED OR PLATED FINISHES			
	TOLERANCES			
	BASIC DIMENSIONS	DEC MALS PLACES	FRAC TIONS	
FINISH	UNDER 6	± .02	± .005	± 1/64
	6 24 INCL	± .03	± .010	± 1/32
COMM TOL APPLY TO STK SIZES	OVER 24	± .06	± .015	± 1/16
NEXT ASSY USED ON NUS APPLICATION	ANGLES ± 1°			

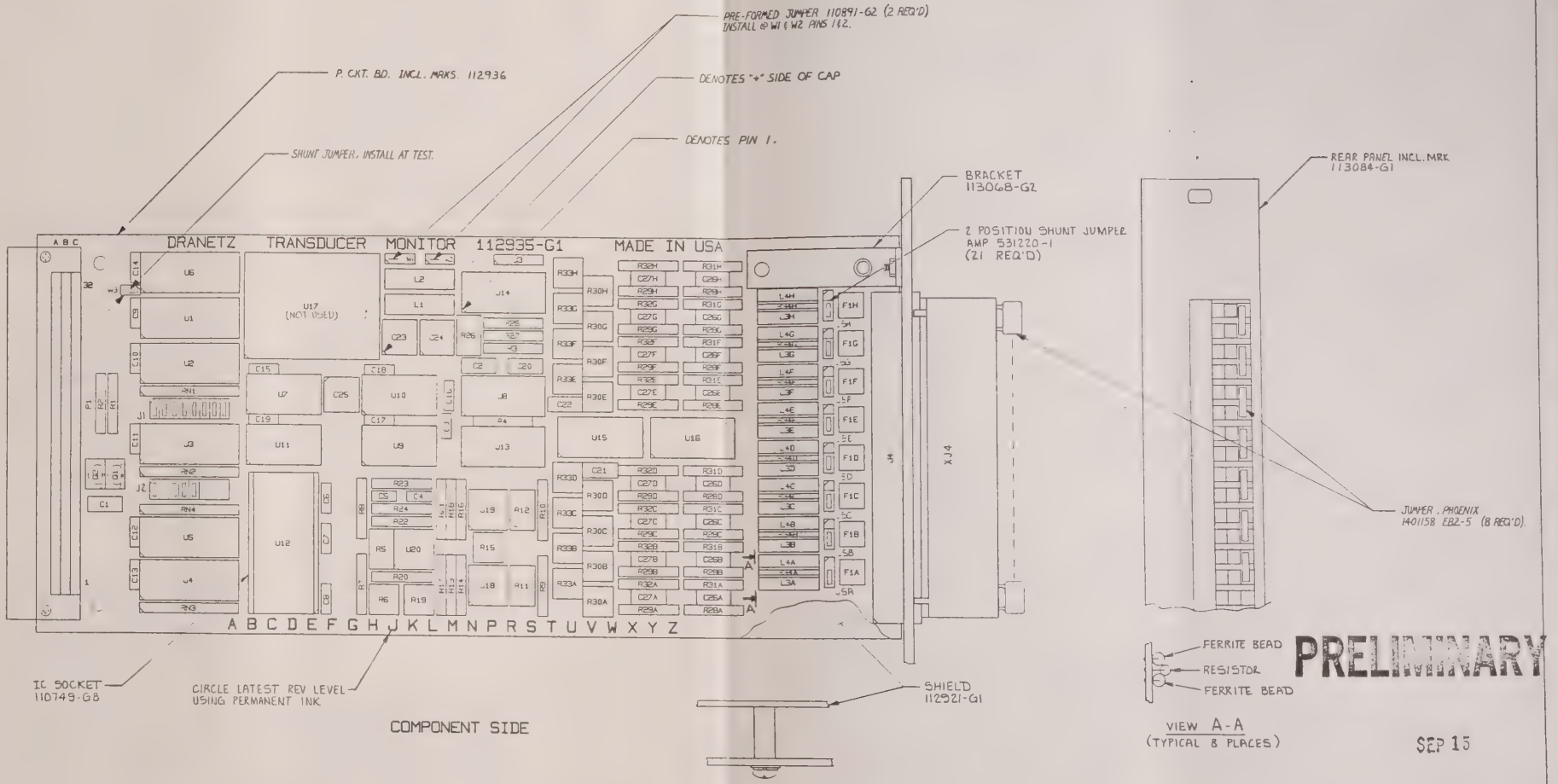
DRANETZ TECHNOLOGIES INC
EDISON NEW JERSEY U.S.A

PRINTED CIRCUIT BOARD SCHEMATIC
FRONT END PROCESSOR

SIZE	CODE IDENT NO	DRAWING NO	REV
D	23207	112930-G1	E

SCALE — SHEET 2 OF 2

REVISIONS				
	DRN	LTR	DESCRIPTION	DATE	APPROVED
MICRO 2-87	NDEN 100	A	RELEASE TO PRODUCTION		
	2633	B	BRACKET 113068-G2 WAS 112794-G1 ADDED REAR PANEL 113084-G1.		
	2658	C	ADDED W7349-2. SHUNT QTY WAS 20. ADDED 110891-G2 & PHOENIX 1401158 EB2-5.		


PRE-FORMED JUMPER 110891-G2 (2 REQ'D) INSTALL @ W1 & W2 PINS 1&2.
P. CKT. BD. INCL. MRKS. 112936
DENOTES "+" SIDE OF CAP
SHUNT JUMPER. INSTALL AT TEST.
DENOTES PIN 1.
BRACKET 113068-G2
2 POSITION SHUNT JUMPER AMP 531220-1 (21 REQ'D)
REAR PANEL INCL. MRK 113084-G1
DRANETZ TRANSDUCER MONITOR 112935-G1 MADE IN USA
A B C
U17 (NOT USED)
A B C D E F G H J K L M N P R S T U V W X Y Z
AMP JUST HEADER 2 POS 87349-2
IC SOCKET 110749-G8
CIRCLE LATEST REV LEVEL USING PERMANENT INK
COMPONENT SIDE
SHIELD 112921-G1
JUMPER . PHOENIX 1401158 EB2-5 (8 REQ'D).
FERRITE BEAD
RESISTOR
FERRITE BEAD
VIEW A-A
(TYPICAL 8 PLACES)

PRELIMINARY

SEP 15

33

			MATERIAL	UNLESS OTHERWISE SPECIFIED DIMENSIONS ARE IN INCHES AND INCLUDE CHEMICALLY APPLIED OR PLATED FINISHES		DRN	
				TOLERANCES		CRL	
			FINISH	BASIC DIMENSION	DECIMALS 2 PLACE	3 PLACE	FRACTIONS	ENG	
				UNDER 6	± .02	± .005	± 1/64	PE	
			COML TOL APPLY TO STK SIZES	6 24 INCL	± .03	± .010	± 1/32	CKD	
				OVER 24	± .06	± .015	± 1/16	APP	
				ANGLES ± 1°					
S 11	112775-G1	656							
GROUP S	NEXT ASSY	USED ON NUS							
	APPLICATION								

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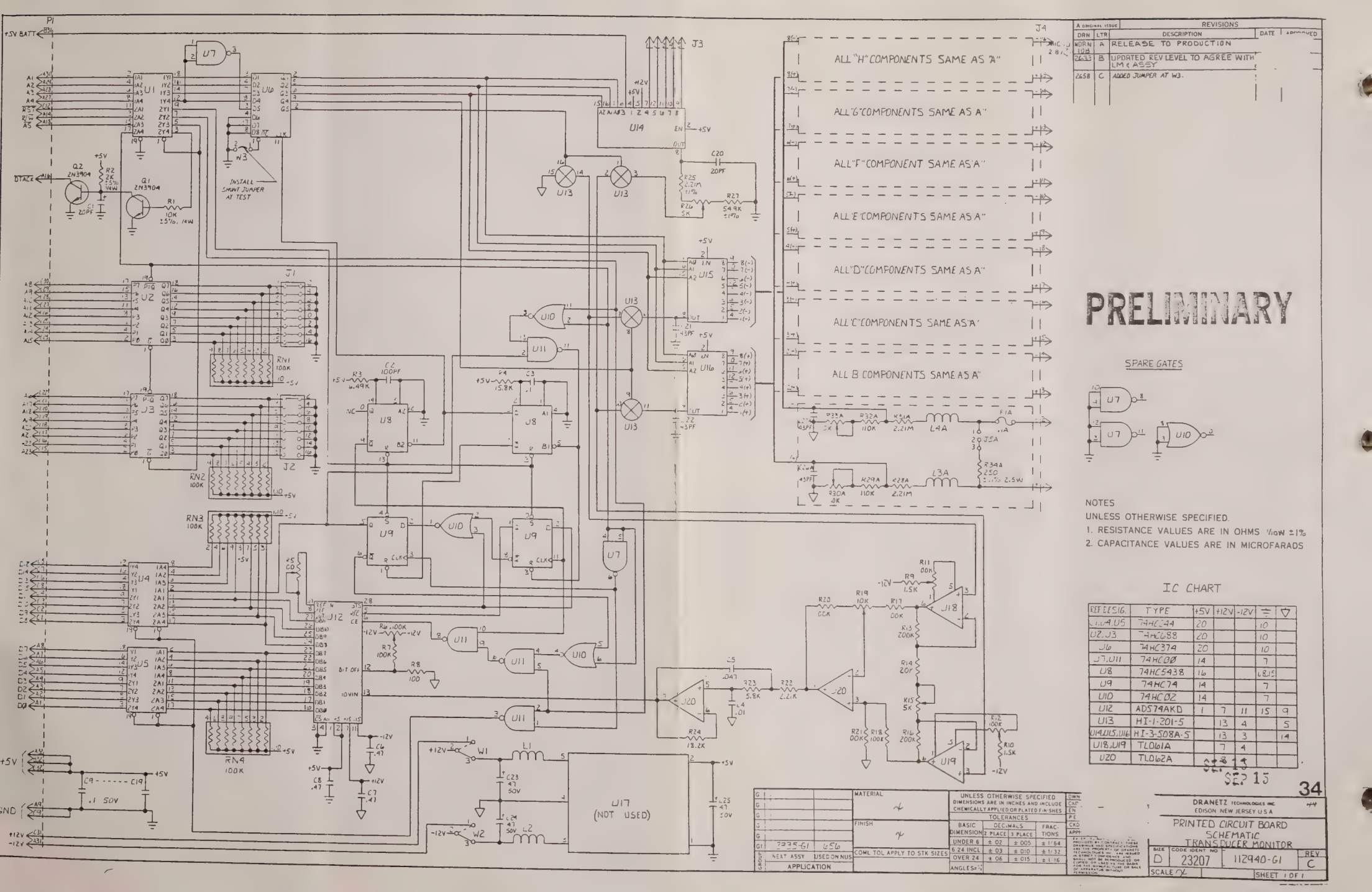
DRANETZ TECHNOLOGIES INC.
EDISON, NEW JERSEY U.S.A.

PRINTED CIRCUIT BOARD ASSEMBLY
TRANSDUCER MONITOR

SIZE	CODE IDENT NO		REV
D	23207	112935-G1	C
SCALE 2/1		SHEET 1 OF 1	


ALL "H" COMPONENTS SAME AS "A"
ALL "G" COMPONENTS SAME AS "A"
ALL "F" COMPONENT SAME AS "A"
ALL "E" COMPONENTS SAME AS "A"
ALL "D" COMPONENTS SAME AS "A"
ALL "C" COMPONENTS SAME AS "A"
ALL B COMPONENTS SAME AS "A"
INSTALL SHUNT JUMPER AT TEST
U17 (NOT USED)

REVISIONS			
DRN	LTR	DESCRIPTION	DATE
WDRN 1013	A	RELEASE TO PRODUCTION	
2633	B	UPDATED REV LEVEL TO AGREE WITH LM ASSY	
2658	C	ADDED JUMPER AT W3.	

PRELIMINARY

SPARE GATES

NOTES
UNLESS OTHERWISE SPECIFIED.
1. RESISTANCE VALUES ARE IN OHMS 1/10W ±1%
2. CAPACITANCE VALUES ARE IN MICROFARADS

IC CHART

REFDES	TYPE	+5V	+12V	-12V	⏚	▽
U1,U4,U5	74HC244	20			10	
U2,U3	74HC688	20			10	
U6	74HC374	20			10	
U7,U11	74HC00	14			7	
U8	74HC5438	16			8,15	
U9	74HC74	14			7	
U10	74HC02	14			7	
U12	ADS74AKD	1	7	11	15	9
U13	HI-1-201-5		13	4		5
U14,U15,U16	HI-3-508A-5		13	3		14
U18,U19	TL061A		7	4		
U20	TL062A					

SEP 15

34

MATERIAL	UNLESS OTHERWISE SPECIFIED DIMENSIONS ARE IN INCHES AND INCLUDE CHEMICALLY APPLIED OR PLATED FINISHES		DRAWN
FINISH	TOLERANCES		CHK'D
COML TOL APPLY TO STK SIZES	BASIC DIMENSION / DECIMALS 2 PLACE / 3 PLACE / FRACTIONS		ENG
NEXT ASSY USED ON NUS	UNDER 6: ± .02 / ± .005 / ± 1/64		PE
APPLICATION	6 24 INCL: ± .03 / ± .010 / ± 1/32		CK'D
	OVER 24: ± .06 / ± .015 / ± 1/16		APPR.
	ANGLES ± ½°		

DRANETZ TECHNOLOGIES INC. EDISON NEW JERSEY U.S.A.

PRINTED CIRCUIT BOARD SCHEMATIC TRANSDUCER MONITOR

SIZE	CODE IDENT NO		REV
D	23207	112940-G1	C

SCALE NONE — SHEET 1 OF 1

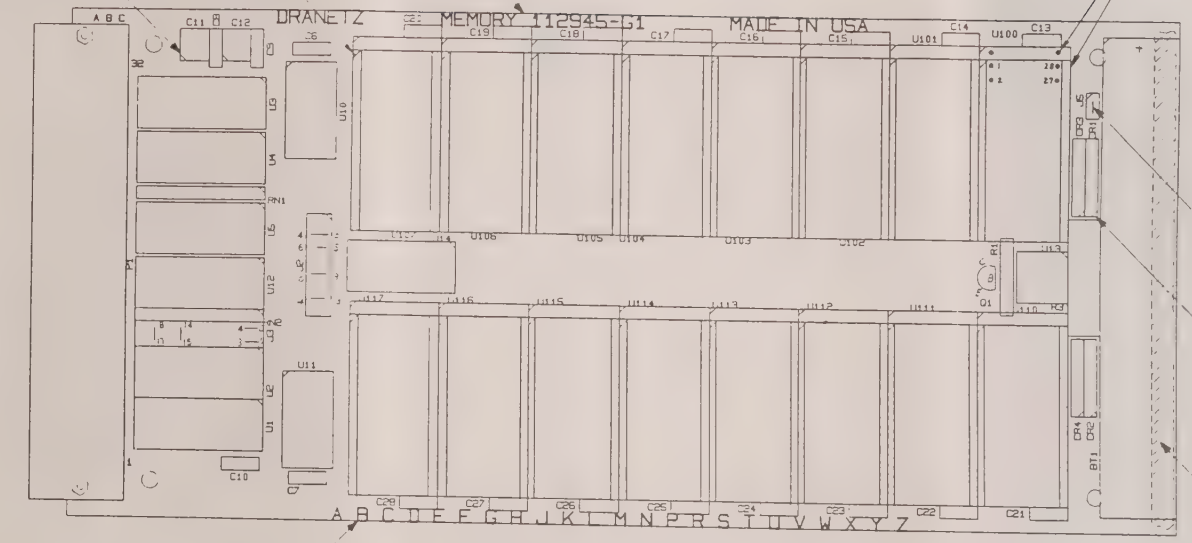
REVISIONS				
DRN	LTR	DESCRIPTION	DATE	APPROVED
LOS	B	REMOVED J10-J9, J2-C5 (SECRET STATES 112219-311 J2-C5) ADDED J8 PIN 2 TO SOCKET 110749-GB (PLUG) (C13-C28). REMOVED J4 OUTLINE (CHG'D J3 OUTLINE FROM 6 POSITION TO 20 POSITION (REV SEC P.N.#'S TO CONFORM WITH STANDARD JUMPERS J3 (1-8) (J2 (13-4) WERE (FROM LOCATED (1) POSITION TO THE RIGHT CHG'D U100-U107 & U110-U117 FROM 112034-G1 (30 PIN) TO 112034-G4 (28 PIN)		

P. CKT BD (INCL MARKING) 112946

DENOTES PIN 1

DENOTES PLUS SIDE OF CAPACITOR

I.C. SOCKET. 28 PIN
110749-GB
(16 REQ'D)
INSTALL SO THAT THEY ARE OFFSET BY (1) PIN FROM THE 30 PIN COMPONENT OUTLINE AS SHOWN @ U100-U107 & U110-U117.



COMPONENT SIDE

SHUNT JUMPER
AMP 531220-1
(9 REQ'D)

DENOTES CATHODE

SEE NOTES 1 & 2

CIRCLE LATEST REV LEVEL USING PERMANENT INK

NOTES:
1. SPACE BATTERY PACK (BT1) .020 WITH FISHPAPER SHIM AND SOLDER, THEN REMOVE SHIM.
2. APPLY BEAD OF RTV #738 BETWEEN BATTERY AND P.CKT BD EDGE ALONG ENTIRE LENGTH OF BATTERY (AFTER SOLDER FLOW).

PRELIMINARY SEP 15

35

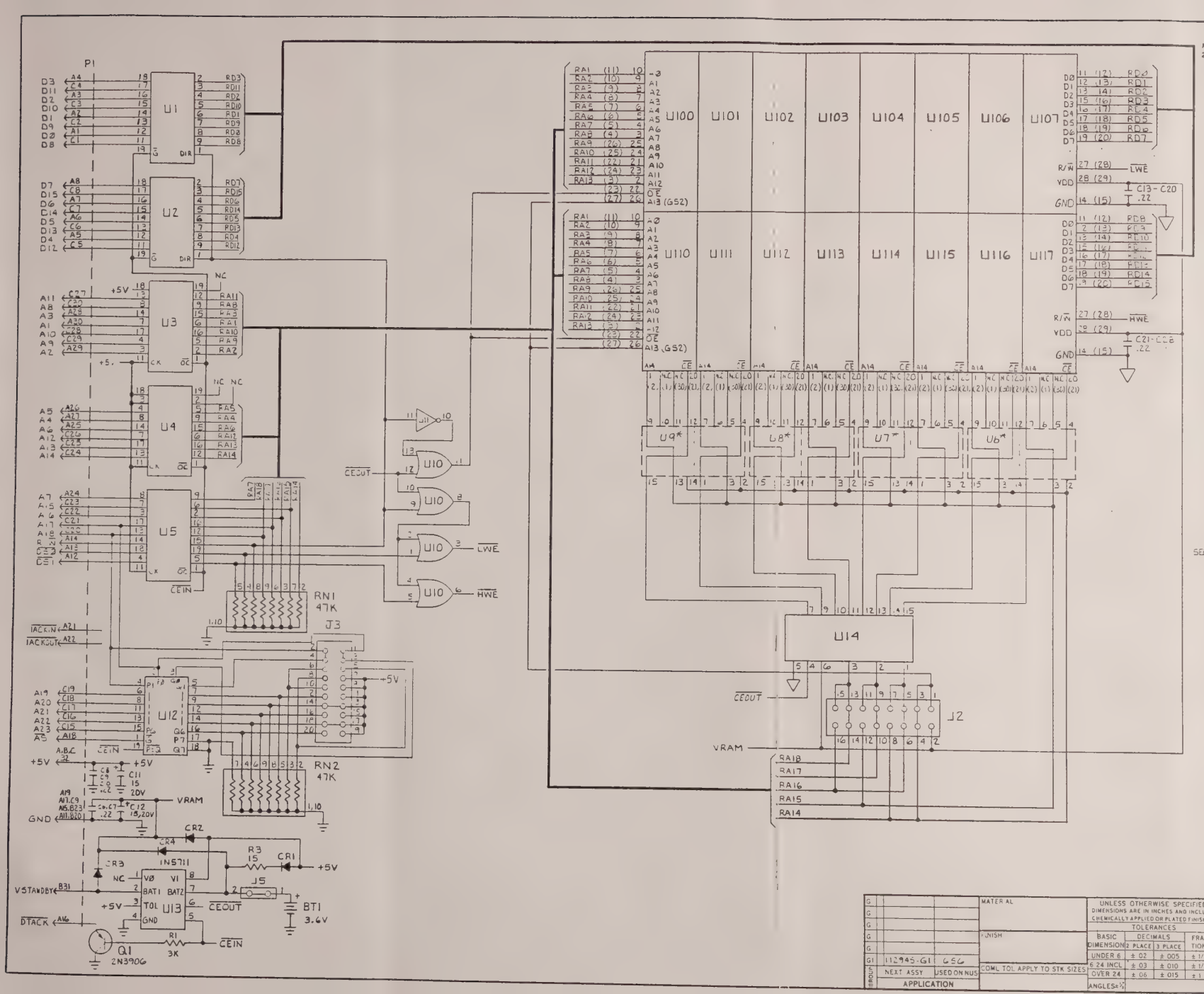
MATERIAL ~	UNLESS OTHERWISE SPECIFIED DIMENSIONS ARE IN INCHES AND INCLUDE CHEMICALLY APPLIED OR PLATED FINISHES			DWN	DRANETZ TECHNOLOGIES INC. EDISON NEW JERSEY U.S.A.
FIN.SH ~	TOLERANCES			CKD	
	BASIC DIMENSION	DECIMALS 2 PLACE	DECIMALS 3 PLACE	FRACTIONS	ENG
	UNDER 6	± .02	± .005	± 1/64	PE
COML TOL APPLY TO STK SIZES	6-24 INCL	± .03	± .010	± 1/32	CKD
	OVER 24	± .06	± .015	± 1/16	APPR
	ANGLES ± ½°				

112775-G1 656
NEXT ASSY USED ON NUS
APPLICATION

PRINTED CIRCUIT BOARD ASSEMBLY
MEMORY BOARD

SIZE	CODE IDENT. NO.		REV.
D	23207	112945-G1	B

SCALE 2:1 SHEET 1 of 1



REVISIONS				
DRN	LTR	DESCRIPTION	DATE	APPROVED
NORM 101	A	RELEASED TO PRODUCTION		
2631	B	J3 WAS A 14 PIN JUMPER. MADE U6-U9 NOT USED. U100-U107 & U110-U117 PART NO. WAS HM6b202. II JUMPER 3-4 WAS 1-2, REMOVED J4. REMOVED C2-C5. ADDED C13-C28. ADDED CONN. U9-9 TO U9-13, U9-12 TO U9-15, U9-1 TO U9-4, U9-3 TO U9-7, U8-9 TO U8-13, U8-12 TO U8-15, U8-1 TO U8-4, U8-3 TO U8-7, U7-9 TO U7-13, U7-12 TO U7-15, U7-1 TO U7-4, U7-3 TO U7-7, U6-9 TO U6-13, U6-12 TO U6-15, U6-1 TO U6-4, U6-3 TO U6-7 L3 JUMPER 17-18 & 13-14 WERE EACH LOCATED IN POSITION UP. REVISED PIN NUMBERS FOR U100-U107 & U110-U117 & ADDED NOTE 4 & 5.		

NOTES.
UNLESS OTHERWISE SPECIFIED

1. RESISTANCE VALUES ARE IN OHMS ¼ W ± 5%
2. CAPACITANCE VALUES ARE IN MICROFARADS
3. DIODES ARE 101345
4. NUMBERS IN PARENTHESIS REPRESENT PIN-OUTS FOR 30 PIN DEVICE FORMERLY USED @ THESE LOCATIONS.
5. * INDICATES THESE IC's ARE NOT USED.

I.C. TABLE

REF DESIG	TYPE	+5V	VRAM	GND
U1, U2	74HC245	20		10
U3 - U5	74HC373	20		10
U12	74HC688	20		10
U6 - U9*	74HC139		16	8
U4*	74HC138		16	8
U100 - U107 U110 - U117	112034-G4		(29) 28	(15) 14
U10	74HC32		14	7
U11	74HC04		14	7
U13	DS1210	8		4

SEE NOTE 4

PRELIMINARY

SPARES
U11

MATERIAL	UNLESS OTHERWISE SPECIFIED DIMENSIONS ARE IN INCHES AND INCLUDE CHEMICALLY APPLIED OR PLATED FINISHES		
FINISH	TOLERANCES		
COML TOL APPLY TO STK SIZES	BASIC DIMENSION	DECIMALS 2 PLACE	DECIMALS 3 PLACE	FRACTIONS
	UNDER 6	± .02	± .005	± 1/64
	6 24 INCL	± .03	± .010	± 1/32
	OVER 24	± .06	± .015	± 1/16
	ANGLES= ½°			

GROUP G1 112945-G1 G56
NEXT ASSY USED ON NUS
APPLICATION

DRAWN CHK ENG PE CKD APPR

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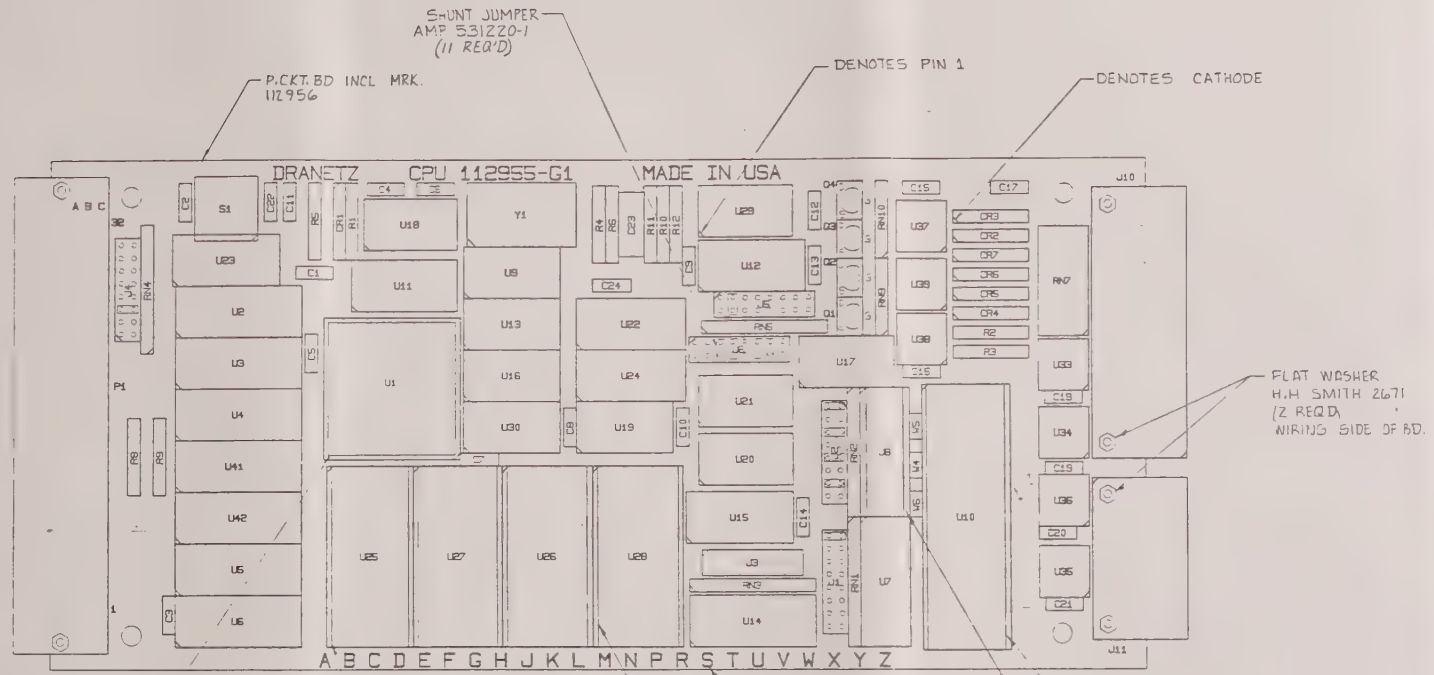
DRANETZ TECHNOLOGIES INC
EDISON NEW JERSEY U.S.A.

SCHEMATIC MEMORY BD.

SIZE	CODE IDENT NO.		REV
D	23207	112950-G1	B
SCALE		SHEET 1 OF 1	

REVISIONS				
	DRN	LTR	DESCRIPTION	DATE	APPROVED
MICS 2-87	LUND 101	A	RELEASED TO PRODUCTION		
	2631	B	U27 TO U28 WHERE 112034-G2, ADDED SOCKET 110749-G5 @ U8.		
	2658	C	DELETED SHUNT JUMPER AT J6.9-10 AND ADDED SHUNTS AT J6.7-8 & J6.11-12 QTY OF SHUNTS WAS 10		


SHUNT JUMPER AMP 531220-1 (11 REQ'D)
P.CKT. BD INCL MRK. 112956
DENOTES PIN 1
DENOTES CATHODE
DRANETZ CPU 112955-G1 \MADE IN USA
FLAT WASHER H.H SMITH 2671 (2 REQ'D) WIRING SIDE OF BD.
IC SOCKET 68 PIN 113223-G1 @ U1
IC SOCKET 28 PIN 110749-G8 (3 REQ'D @ U25-U27)
CIRCLE LATEST REV LEVEL USING PERMANENT INK
IC SOCKET (40 PIN) 110749-G9
I.C. SOCKET (20 PIN) 110749-G5
IC SOCKET 28 PIN 113224-G1

PRELIMINARY

SEP 15

37

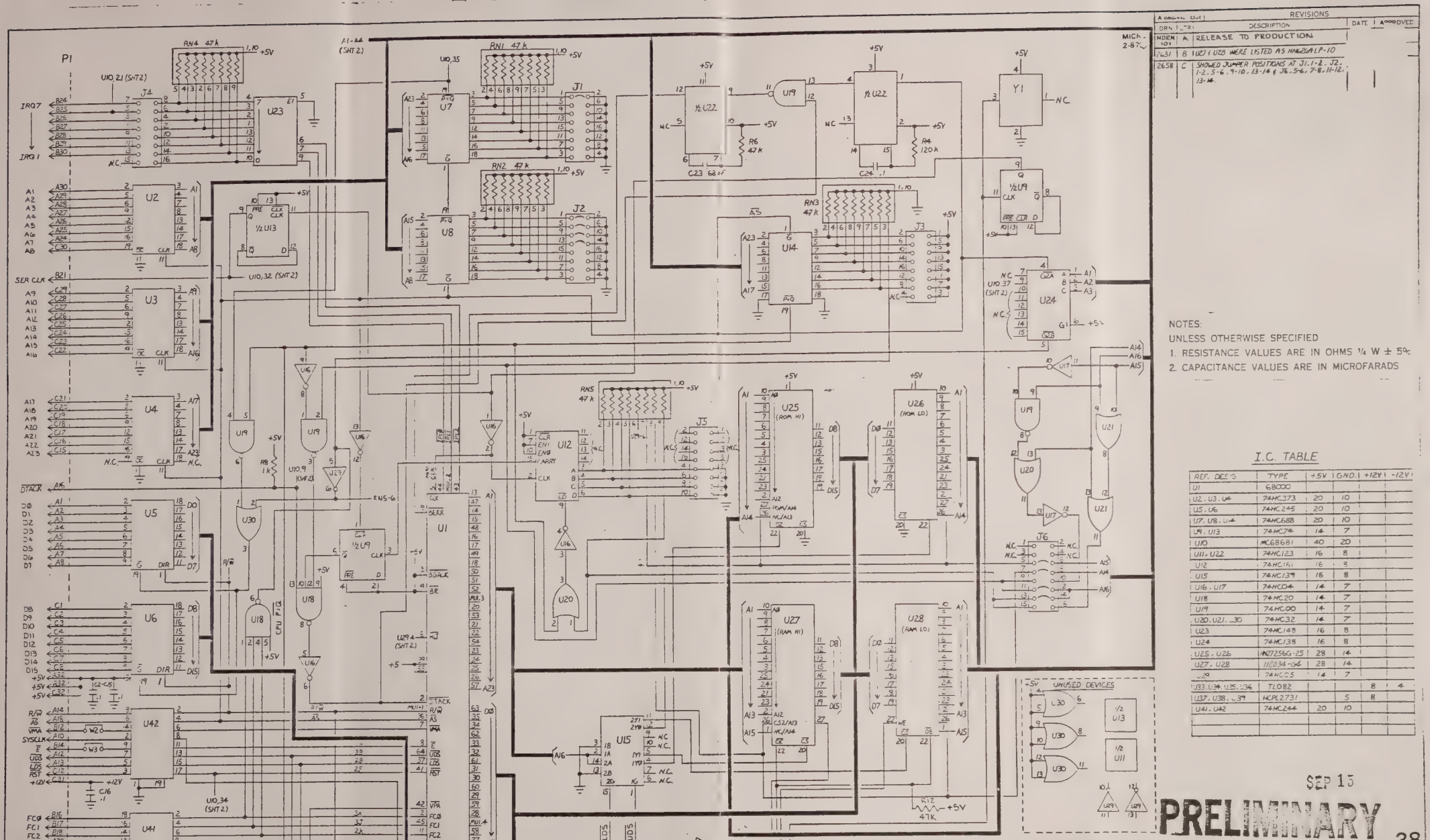
MATERIAL	—	UNLESS OTHERWISE SPECIFIED DIMENSIONS ARE IN INCHES AND INCLUDE CHEMICALLY APPLIED OR PLATED FINISHES		DRN
FINISH	—	TOLERANCES		CHK
		BASIC DIMENSION	DECIMALS 2 PLACE / 3 PLACE	FRACTIONS	ENG
		UNDER 6	± .02 / ± .005	± 1/64	PE
		6-24 INCL	± .03 / ± .010	± 1/32	QC
COMM. TOL APPLY TO STK SIZES		OVER 24	± .1 / ± .015	± 1/16	APPR
		ANGLES ± ½°			

G			
F			
E			
D			
C	112775-G1	6540	
B	NEXT ASSY	USED ON	
A	APPLICATION		

DRANETZ TECHNOLOGIES INC
EDISON NEW JERSEY U.S.A.

PRINTED CIRCUIT BOARD ASSEMBLY CPU

SIZE	CODE IDENT NO		REV
D	23207	112955-G1	C
SCALE		SHEET 1 OF 1	



REVISIONS

LTR	DESCRIPTION	DATE	APPROVED
A	RELEASE TO PRODUCTION		
B	U10 / U28 WERE LISTED AS HAN2/ALP-10		
C	SHOWED JUMPER POSITIONS AT J1.1-2, J2.1-2, 5-6, 9-10, 13-14 & J6.5-6, 7-8, 11-12, 13-14.		

NOTES:
UNLESS OTHERWISE SPECIFIED
1. RESISTANCE VALUES ARE IN OHMS ¼ W ± 5%
2. CAPACITANCE VALUES ARE IN MICROFARADS

I.C. TABLE

REF. DES'S	TYPE	+5V	GND	+12V	-12V
U1	68000				
U2, U3, U4	74HC373	20	10		
U5, U6	74HC245	20	10		
U7, U8, U14	74HC688	20	10		
U9, U13	74HC74	14	7		
U10	MC68681	40	20		
U11, U22	74HC123	16	8		
U12	74HC161	16	8		
U15	74HC139	16	8		
U16, U17	74HC04	14	7		
U18	74HC20	14	7		
U19	74HC00	14	7		
U20, U21, 30	74HC32	14	7		
U23	74HC148	16	8		
U24	74HC138	16	8		
U25, U26	HM7256G-25	28	14		
U27, U28	112034-64	28	14		
U29	74HC05	14	7		
U33, U34, U35, U36	TL082			8	4
U37, U38, U39	HCPL2731		5	8	
U41, U42	74HC244	20	10		

UNUSED DEVICES
U30 — 1/2 U13
U30 — 1/2 U11
U29

SEP 15

PRELIMINARY

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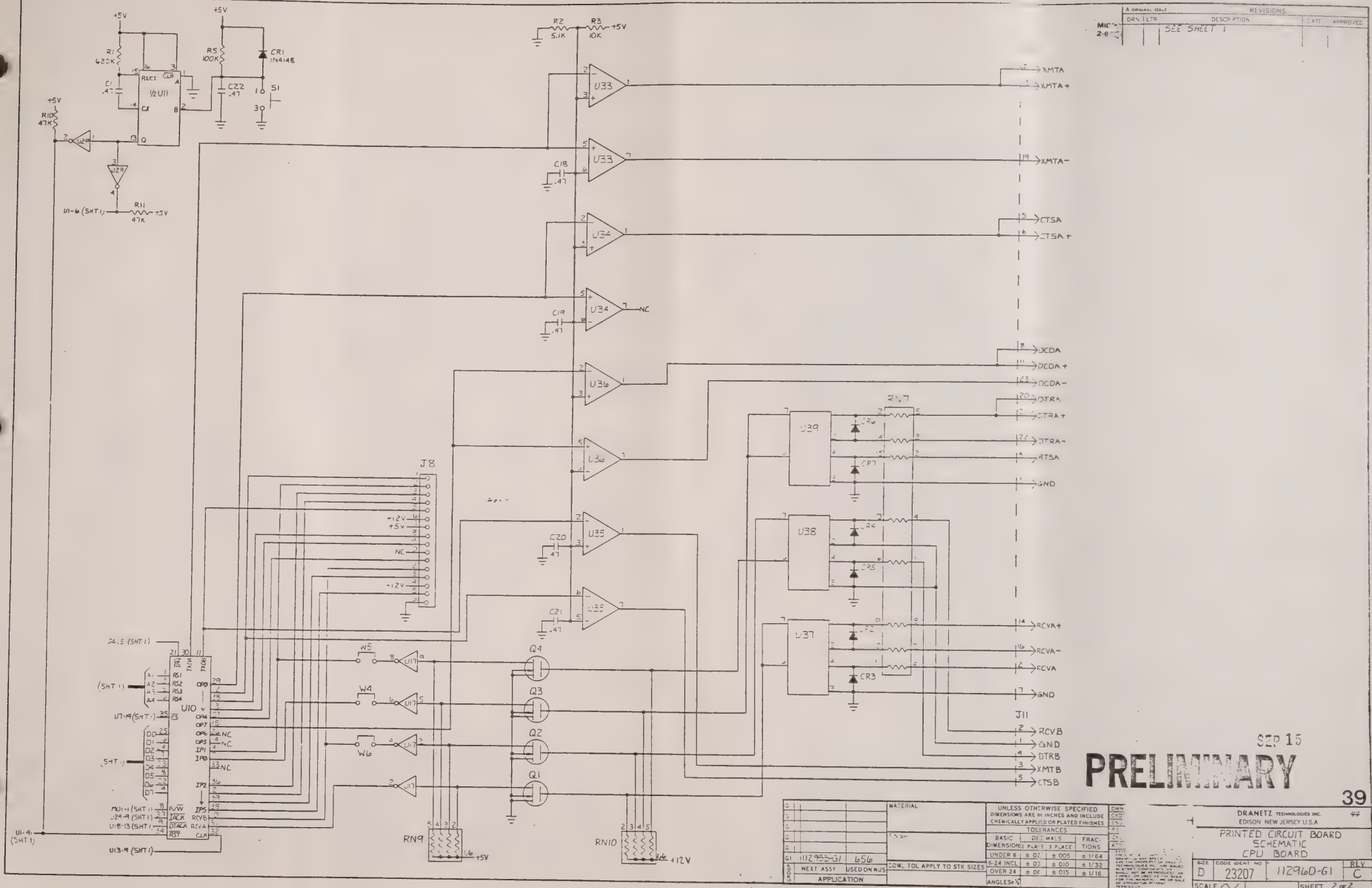
MATERIAL	UNLESS OTHERWISE SPECIFIED DIMENSIONS ARE IN INCHES AND INCLUDE CHEMICALLY APPLIED OR PLATED FINISHES	DWN	
FINISH	TOLERANCES	CHK	
	BASIC DIMENSION / DECIMALS 2 PLACE / 3 PLACE / FRACTIONS	ENG	
	UNDER 6: ± .02 / ± .005 / ± 1/64	PE	
	6 24 INCL: ± .03 / ± .010 / ± 1/32	CAD	
	OVER 24: ± .06 / ± .015 / ± 1/16	APP	
	ANGLES: ± ½°		
COMMENTS APPLY TO STK SIZES			
NEXT ASSY USED ON NUS			
APPLICATION			

112955-G1 656

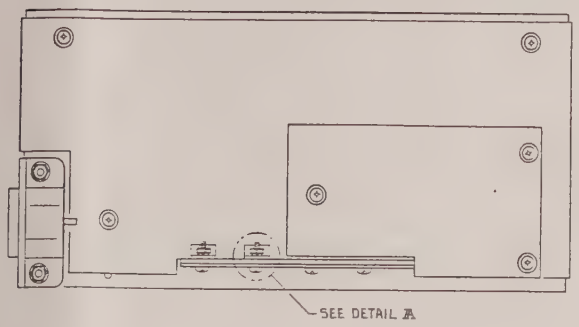
DRANETZ TECHNOLOGIES INC. EDISON, NEW JERSEY U.S.A.

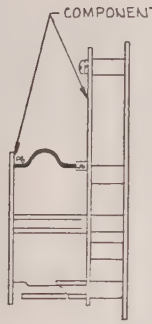
PRINTED CIRCUIT BOARD
SCHEMATIC
CPU BOARD

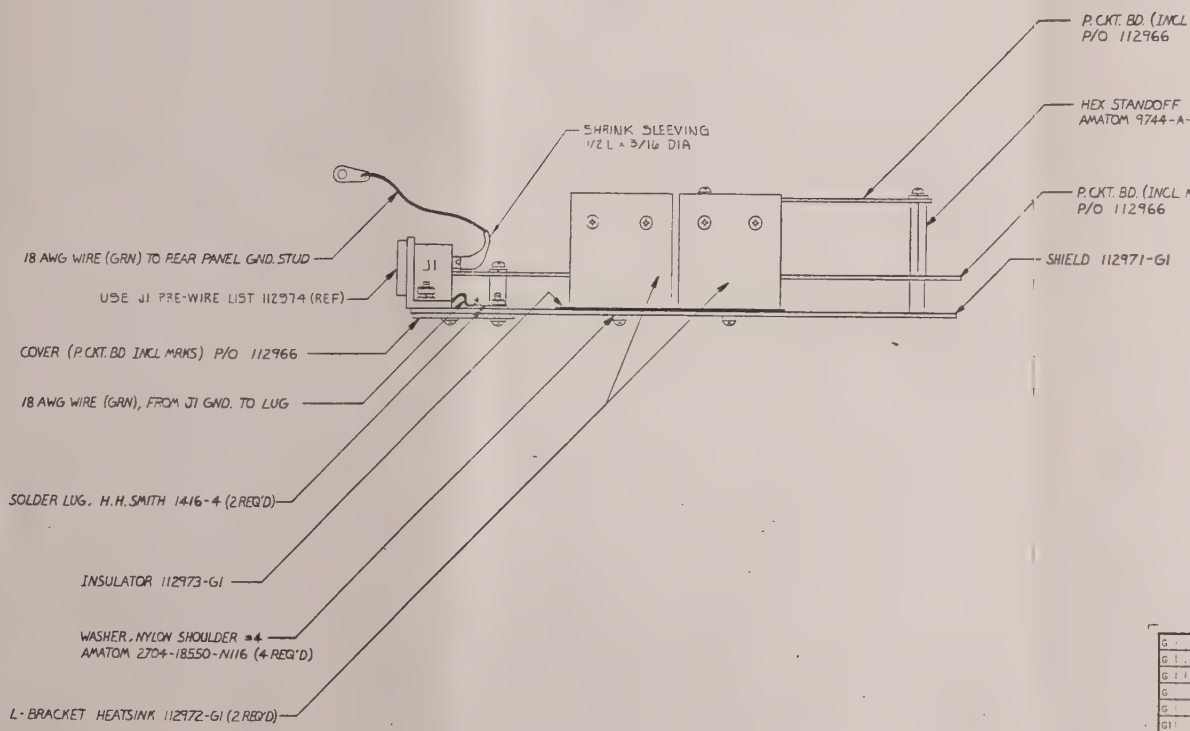
SIZE	CODE IDENT NO		REV
D	23207	112960-G1	C
SCALE ~		SHEET 1 of 2	

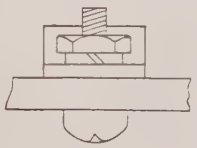

+5V
R1 680K
C1 .47
½U11
RXCX
CLR
CK
R5 100K
C22 .47
CR1 IN4148
S1
R10 47K
U20
U29
U1-6 (SHT 1)
R11 47K
R2 5.1K
R3 10K
U33
U34
U36
U30
U35
C18 .47
C19 .47
C20 .47
C21 .47
NC
XMTA
XMTA+
XMTA-
CTSA
CTSA+
DCDA
DCDA+
DCDA-
DTRA
DTRA+
DTRA-
RTSA
GND
RCVA+
RCVA-
RCVA
RCVB
DTRB
XMTB
CTSB
RN7
U39
U38
U37
CR6
CR7
CR5
CR4
CR3
J11
J8
+12V
-12V
U10
U17
W5
W4
W6
Q4
Q3
Q2
Q1
RN9
RN10
J4.5 (SHT 1)
U1-9 (SHT 1)
U13-9 (SHT 1)
U1-4 (SHT 1)
U18-13 (SHT 1)
MATERIAL
UNLESS OTHERWISE SPECIFIED DIMENSIONS ARE IN INCHES AND INCLUDE CHEMICALLY APPLIED OR PLATED FINISHES
TOLERANCES
COMM. TOL APPLY TO STK SIZES
NEXT ASSY
USED ON NUS
APPLICATION
DRANETZ TECHNOLOGIES INC.
EDISON NEW JERSEY U.S.A.
PRINTED CIRCUIT BOARD SCHEMATIC
CPU BOARD
SIZE D
CODE IDENT NO 23207
112960-G1
REV C
SCALE
SHEET 2 of 2
REVISIONS
SEE SHEET 1
SEP 15
PRELIMINARY
39

REVISIONS			
DRN	LTR	DESCRIPTION	APPROVED
MICRO 2-87 NDRN 101	A	RELEASED TO PRODUCTION	
2651	B	ADD. SHRINK SLEEVING & REF TO USE J1 PRE-WIRE LIST 112974. CHG: M/F STANDOFF WAS 1 3/8 LG.	






P.CKT. BD. (INCL MRKS) P/O 112966
HEX STANDOFF M/F 1/4" x 1 1/8 LG AMATOM 9744-A-0440-17 (3 REQ'D).
SHRINK SLEEVING 1/2 L x 3/16 DIA
P.CKT. BD. (INCL MRKS) P/O 112966
SHIELD 112971-G1
18 AWG WIRE (GRN) TO REAR PANEL GND. STUD
USE J1 PRE-WIRE LIST 112974 (REF)
COVER (P.CKT. BD INCL MRKS) P/O 112966
18 AWG WIRE (GRN), FROM J1 GND. TO LUG
SOLDER LUG, H.H. SMITH 1416-4 (2 REQ'D)
INSULATOR 112973-G1
WASHER, NYLON SHOULDER #4 AMATOM 2704-18550-N116 (4 REQ'D)
L-BRACKET HEATSINK 112972-G1 (2 REQ'D)
J1

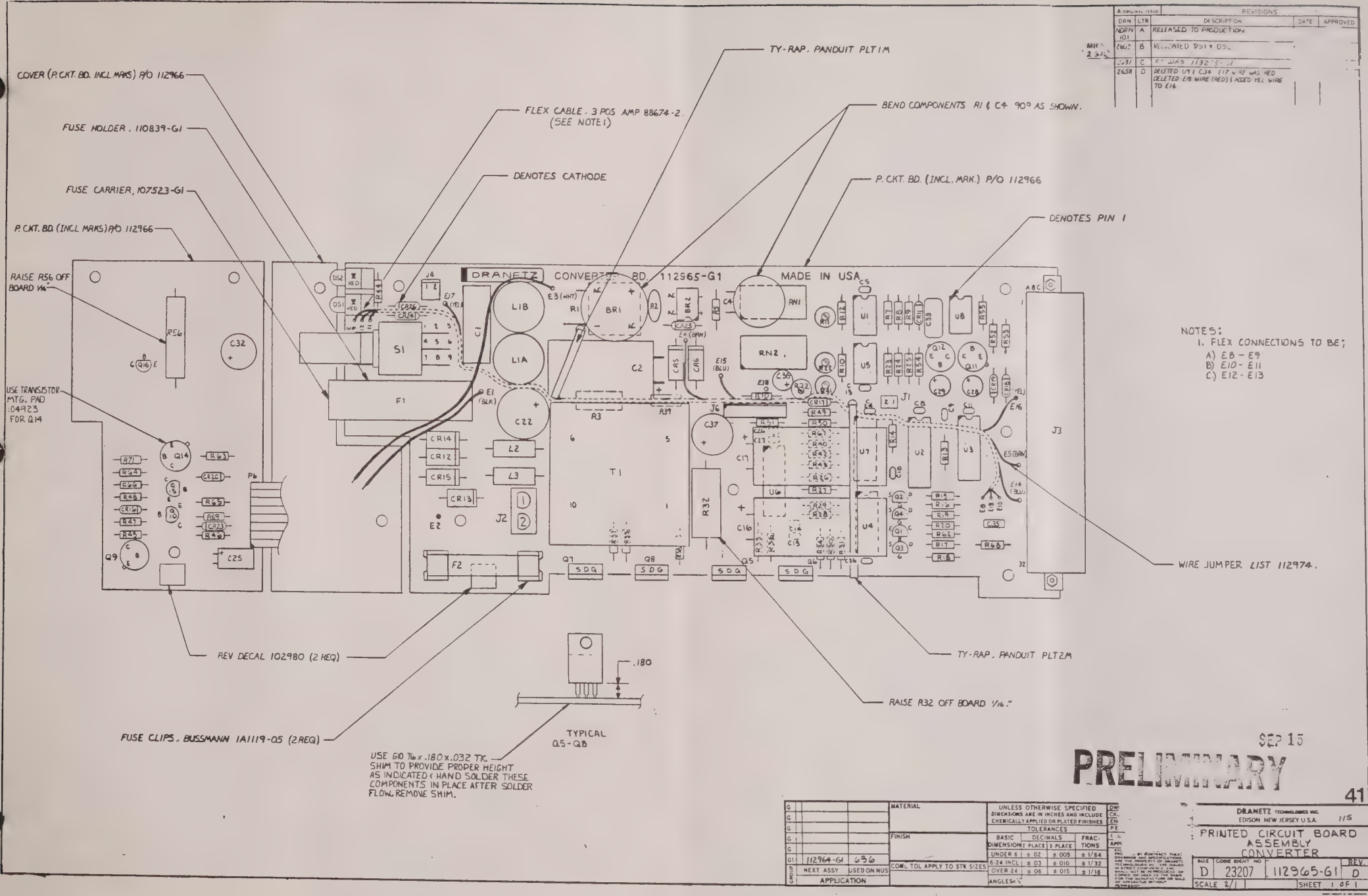


DETAIL A
SCALE 4/1
TYPICAL Q5-Q8

PRELIMINARY SEP 15

40

G		MATERIAL	UNLESS OTHERWISE SPECIFIED DIMENSIONS ARE IN INCHES AND INCLUDE CHEMICALLY APPLIED OR PLATED FINISHES	DWN	DRANETZ TECHNOLOGIES INC. EDISON NEW JERSEY U.S.A. 115
G				CKD	
G		FINISH	TOLERANCES	E	MAIN FRAME BATTERY CONVERTER
G			BASIC DIMENSION / DECIMALS 2 PLACE / 3 PLACE / FRACTIONS	P	
G			UNDER 6 / ± .02 / ± .005 / ± 1/64	CKD	
G			6-24 INCL / ± .03 / ± .010 / ± 1/32	APP	
G1	656	COML TOL APPLY TO STK SIZES	OVER 24 / ± .06 / ± .015 / ± 1/16	ENGR	
GROUP	NEXT ASSY / USED ON NUS		ANGLES ±	MFG	
	APPLICATION				SIZE D / CODE IDENT NO 23207 / 112964-G1 / REV B
					SCALE 1:1 / SHEET 1 OF 1


COVER (P.CKT. BD. INCL. MARKS) P/O 112966
FUSE HOLDER, 110839-G1
FUSE CARRIER, 107523-G1
P. CKT. BD. (INCL MARKS) P/O 112966
RAISE R56 OFF BOARD 1/16"
USE TRANSISTOR MTG. PAD 104923 FOR Q14
REV DECAL 102980 (2 REQ)
FUSE CLIPS, BUSSMANN 1A1119-05 (2 REQ)
FLEX CABLE, 3 POS AMP 88674-2 (SEE NOTE 1)
DENOTES CATHODE
TY-RAP, PANDUIT PLT1M
BEND COMPONENTS R1 & C4 90° AS SHOWN.
P. CKT. BD. (INCL. MRK.) P/O 112966
DENOTES PIN 1
DRANETZ CONVERTER BD. 112965-G1 MADE IN USA
WIRE JUMPER LIST 112974.
TY-RAP, PANDUIT PLT2M
RAISE R32 OFF BOARD 1/16"
.180
TYPICAL Q5-Q8
USE G10 7/16 x .180 x .032 TK. SHIM TO PROVIDE PROPER HEIGHT AS INDICATED. HAND SOLDER THESE COMPONENTS IN PLACE AFTER SOLDER FLOW. REMOVE SHIM.
NOTES:
1. FLEX CONNECTIONS TO BE;
A) E8 - E9
B) E10 - E11
C) E12 - E13

REVISIONS				
DRN	LTR	DESCRIPTION	DATE	APPROVED
NORN 101	A	RELEASED TO PRODUCTION		
2602	B	RELOCATED DS1 & DS2		
2631	C	E7 WAS 112375-1		
2658	D	DELETED U9 & C34. E17 w RE WAS RED DELETED E18 WIRE (RED) & ADDED YEL WIRE TO E16		

SEP 15

PRELIMINARY

41

MATERIAL	UNLESS OTHERWISE SPECIFIED DIMENSIONS ARE IN INCHES AND INCLUDE CHEMICALLY APPLIED OR PLATED FINISHES		
FINISH	TOLERANCES		
	BASIC DIMENSION	DECIMALS 2 PLACE	DECIMALS 3 PLACE	FRACTIONS
	UNDER 6	± .02	± .005	± 1/64
COMM TOL APPLY TO STK SIZES	6-24 INCL	± .03	± .010	± 1/32
	OVER 24	± .06	± .015	± 1/16
	ANGLES ±			

G1	112964-G1	656	
GROUP	NEXT ASSY	USED ON NUS	
	APPLICATION		

DRAWN
CK.
ENG
PE
C. L.
APPR

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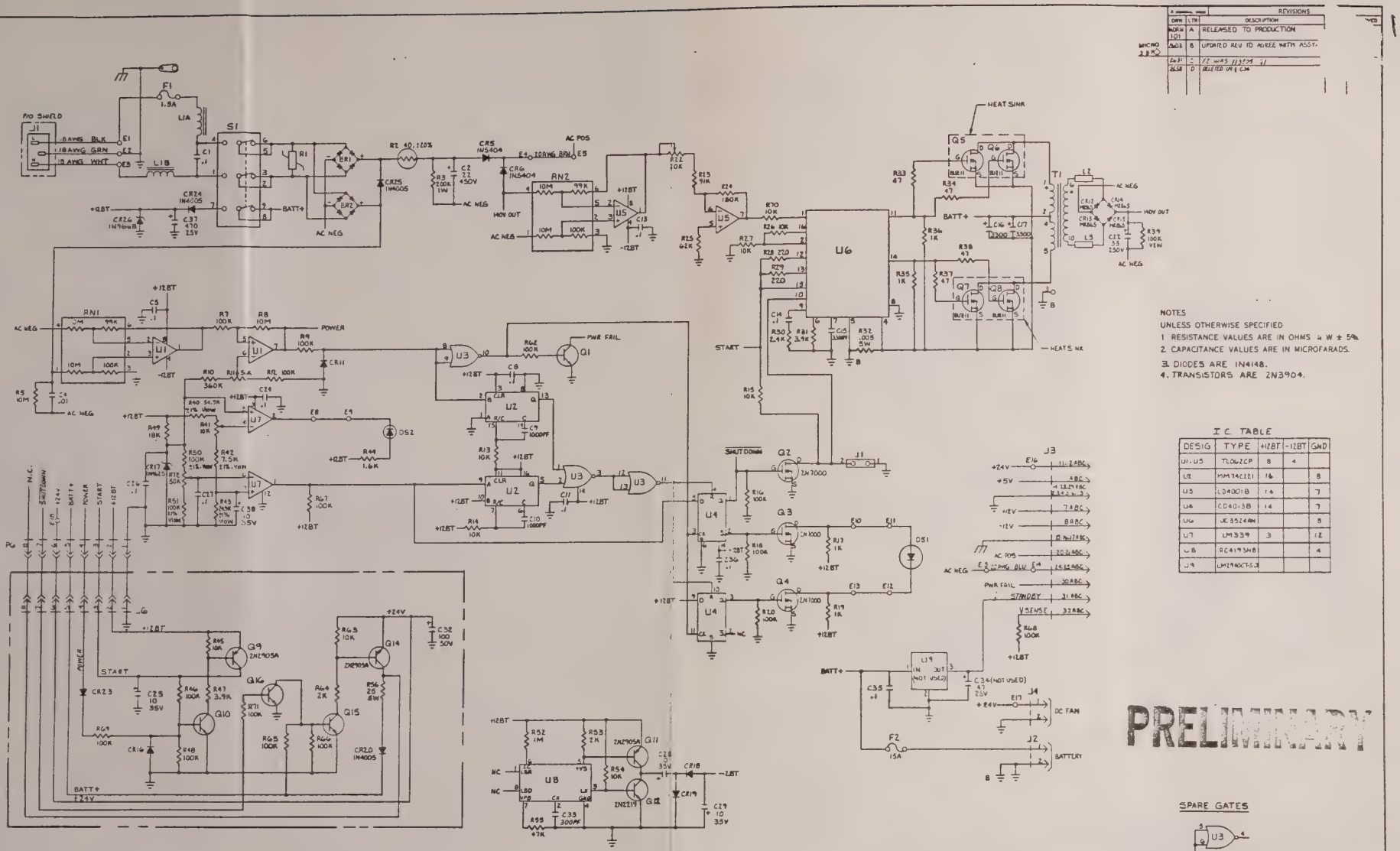
DRANETZ TECHNOLOGIES INC.
EDISON NEW JERSEY U.S.A. 115

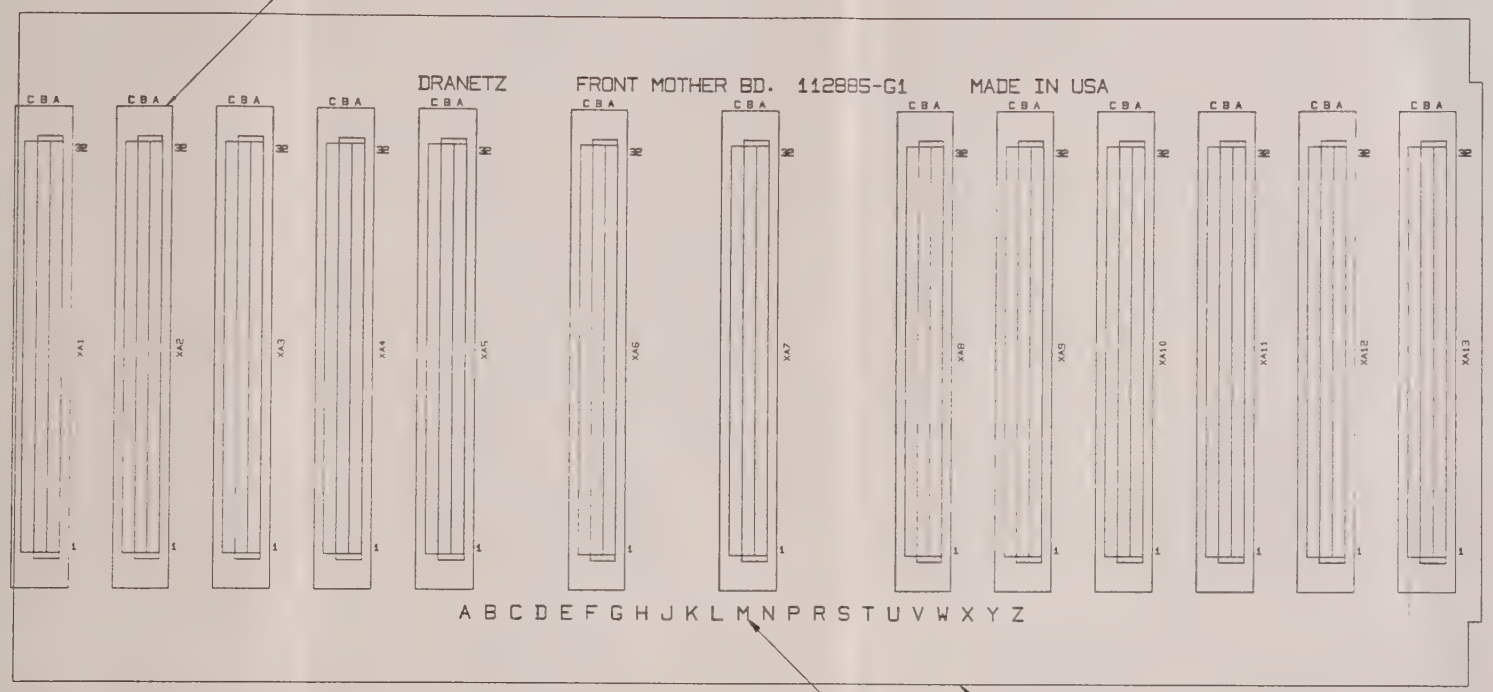
PRINTED CIRCUIT BOARD ASSEMBLY CONVERTER

SIZE	CODE IDENT NO		REV.
D	23207	112965-G1	D
SCALE 2/1		SHEET 1 OF 1	


REVISIONS
DESCRIPTION
RELEASED TO PRODUCTION
UPDATED REV TO AGREE WITH ASST.
12 WAS 112779 -G1
DELETED U9 & C34
NOTES
UNLESS OTHERWISE SPECIFIED
1 RESISTANCE VALUES ARE IN OHMS 4 W ± 5%
2. CAPACITANCE VALUES ARE IN MICROFARADS.
3. DIODES ARE IN4148.
4. TRANSISTORS ARE 2N3904.
I.C. TABLE
DESIG | TYPE | +12BT | -12BT | GND
U1,U5 | TL062CP | 8 | 4 |
U2 | MM74C221 | 16 | | 8
U3 | CD4001B | 14 | | 7
U4 | CD4013B | 14 | | 7
U6 | UC3524AN | | | 8
U7 | LM339 | 3 | | 12
U8 | RC4193NB | | | 4
U9 | LM2940CT-5.0
SPARE GATES
PRELIMINARY
SCHEMATIC
CONVERTER BD.
DRAWING NO 112970-G1
SIZE F
CODE IDENT NO 23207
REV D
SCALE 2/1
SHEET 1 OF 1
42

REVISIONS				
A ORIGINAL ISSUE				
DRN	LTR	DESCRIPTION	DATE	APPROVED
NDRN 101	A	RELEASED TO PRODUCTION		
2631	B	CHANGED XA2 WAS EDISON AGENT P/N MNE96CS-PW-TG. REVISED NOTE 1 FOR CLARITY.		

MICP 2-87



NOTE
1. MASK AREA @ XA2 PRIOR TO SOLDER FLOW. MECHANICALLY INSERT XA2 IN PLACE AT FINAL ASSEMBLY. DO NOT TRIM LEADS ON XA2.

NOT USED PARTS:
XA3-XA5, XA7-XA12

SEP 15

PRELIMINARY

43

		MATERIAL	UNLESS OTHERWISE SPECIFIED DIMENSIONS ARE IN INCHES AND INCLUDE CHEMICALLY APPLIED OR PLATED FINISHES
			TOLERANCES
		FINISH	BASIC DIMENSIONS: DECIMALS 2 PLACE ± .02; 3 PLACE ± .005; FRACTIONS ± 1/64
			UNDER 6: ± .02 ; ± .005 ; ± 1/64
			6-24 INCL: ± .03 ; ± .010 ; ± 1/32
		COML TOL APPLY TO STK SIZES	OVER 24: ± .06 ; ± .015 ; ± 1/16
			ANGLES: ±
G1			
G1			
G1			
G1			
G1	112775-G1	656	
CIRCUIT	NEXT ASSY	USED ON NUS	
	APPLICATION		

DRAWN
CHK'D
ENG
P.E.
CHK'D
APP'D

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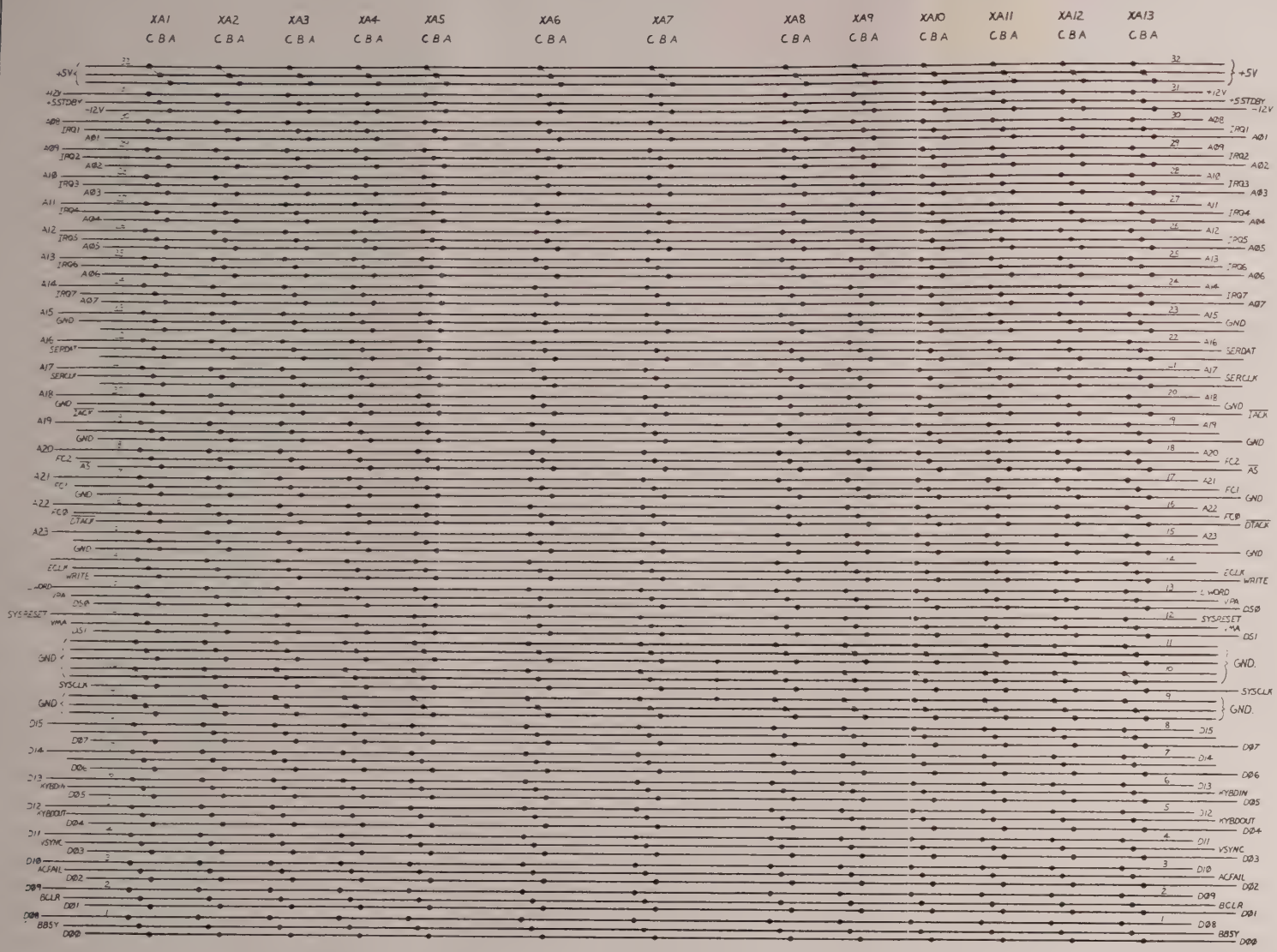
DRANETZ TECHNOLOGIES INC.
EDISON NEW JERSEY U.S.A.

PRINTED CIRCUIT BOARD ASSEMBLY
FRONT MOTHER BOARD

SIZE	CODE IDENT. NO.		REV
D	23207	112885-G1	B
SCALE 2/1		SHEET 1 of 1	



REVISIONS				
A ORIGINAL ISSUE				
DRN	LTR	DESCRIPTION	DATE	APPROVED
NDRN 101	A	RELEASED TO PRODUCTION		
2e31	B	RAISED REV TO AGREE WITH LAY # ASST, SCHEMATIC NOT AFFECTED		

MIC 2-8.

PRELIMINARY SEP 15

44

G1	112895-G1	656	
GROUP	NEXT ASSY	USED ON NUS	
APPLICATION			

MATERIAL —

FINISH —

UNLESS OTHERWISE SPECIFIED DIMENSIONS ARE IN INCHES AND INCLUDE CHEMICALLY APPLIED OR PLATED FINISHES

TOLERANCES

BASIC DIMENSION	DECIMALS 2 PLACE	DECIMALS 3 PLACE	FRACTIONS
UNDER 6	± .02	± .005	± 1/64
6-24 INCL	± .03	± .010	± 1/32
OVER 24	± .06	± .015	± 1/16

ANGLES ±°

COML TOL APPLY TO STK SIZES

DRAN CHK ENG PE CHK APPR

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DRANETZ TECHNOLOGIES INC.
EDISON NEW JERSEY U.S.A.

PRINTED CIRCUIT BOARD SCHEMATIC
FRONT MOTHER BOARD

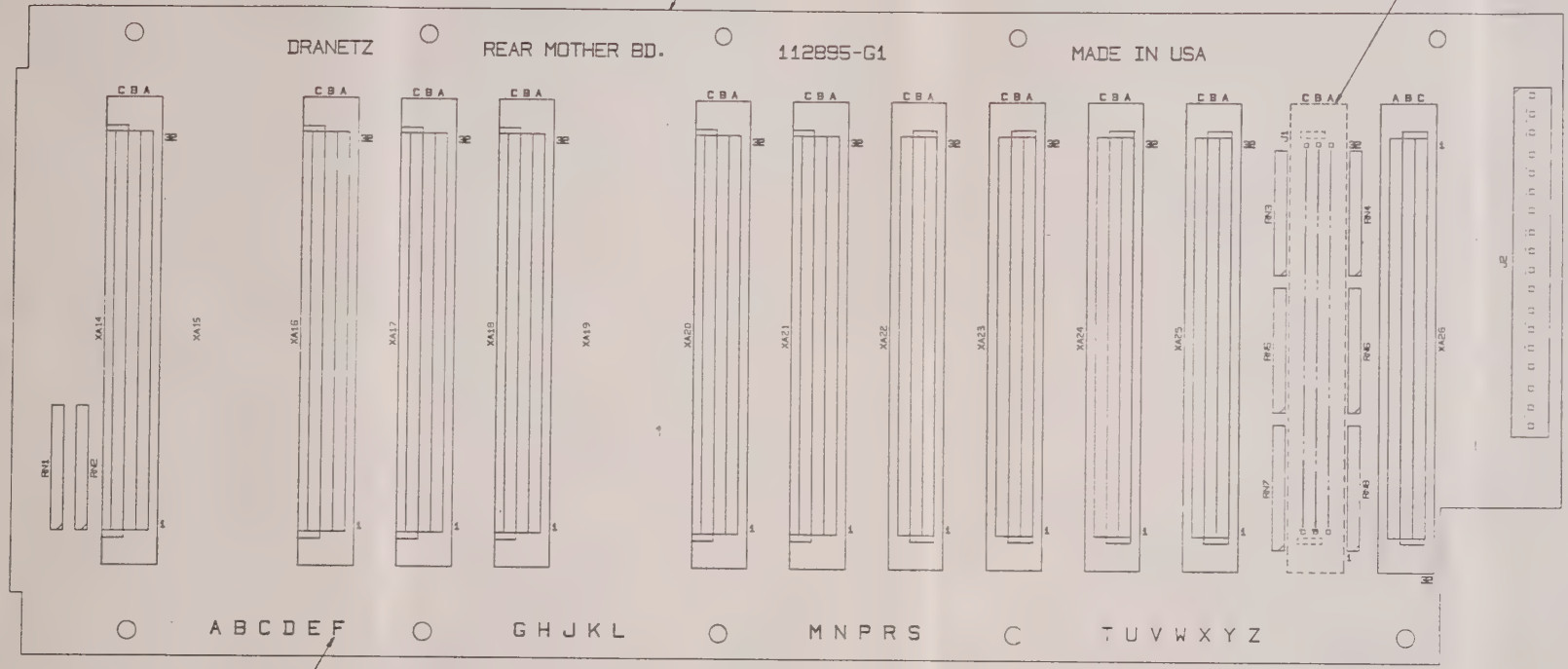
SIZE	CODE IDENT NO		REV
D	23207	112890-G1	B
SCALE ~		SHEET 1 OF 1	

REVISIONS			
DRN LTR	DESCRIPTION	DATE	APPROVED
A	RELEASED TO PRODUCTION		

MICRO 2-87

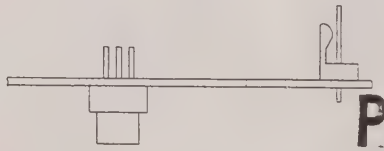
PRINTED CIRCUIT BD. INCL. MRK. 112896

MASK & MECHANICALLY INSERT J1 IN PLACE AFTER SOLDER FLOW



COMPONENT SIDE

CIRCLE LATEST REV LEVEL USING PERMANENT INK



SEP 15

PRELIMINARY

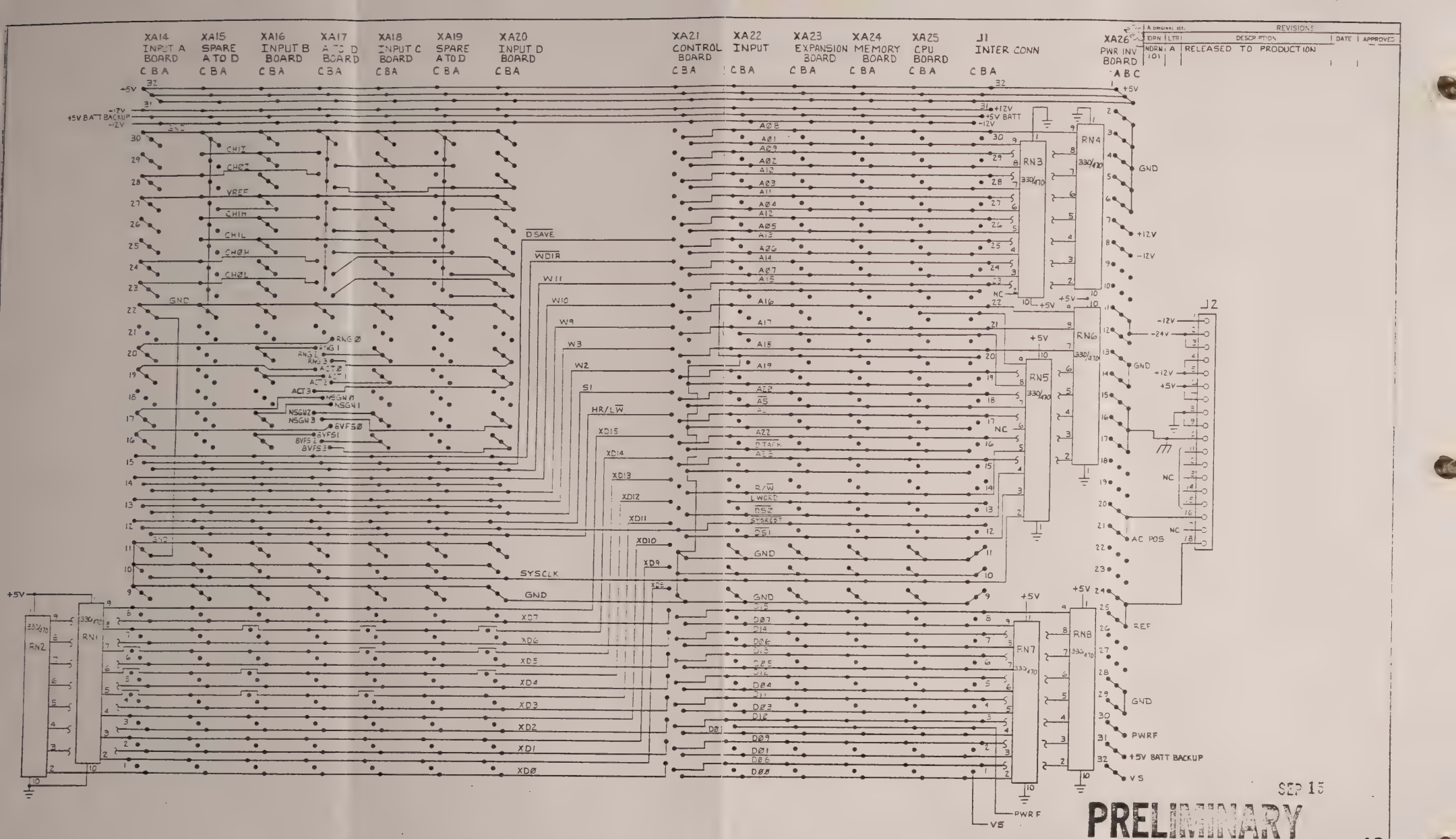
45

	MATERIAL	UNLESS OTHERWISE SPECIFIED DIMENSIONS ARE IN INCHES AND INCLUDE CHEMICALLY APPLIED OR PLATED FINISHES	DWN	
			CKD	
		TOLERANCES	ENG	
	FINISH	BASIC DECIMALS FRAC	PE	
		DIMENSIONS: PLACE 3 PLACE TOOLS	QA	
		UNDER 6 ± .02 ± .005 ± 1/64	APPD	
	COML. TOL APPLY TO STK SIZES	6-24 INCL ± .03 ± .010 ± 1/32		
		OVER 24 ± .06 ± .015 ± 1/16		
112775 G1 656	NEXT ASSY USED ON NUS	ANGLES ± 1°		
CIRCUIT	APPLICATION			

DRANETZ TECHNOLOGIES INC. 441
EDISON, NEW JERSEY U.S.A.

PRINTED CIRCUIT BD. ASSEMBLY
REAR MOTHER BD.

SIZE	CODE IDENT. NO.		REV
D	23207	112895-G1	A
SCALE 2/1		SHEET 1 OF 1	



SEP 15

PRELIMINARY

46

MATERIAL	UNLESS OTHERWISE SPECIFIED DIMENSIONS ARE IN INCHES AND INCLUDE CHEMICALLY APPLIED OR PLATED FINISHES			
FINISH	TOLERANCES			
	BASIC DIMENSIONS	DECIMALS 2 PLACE	DECIMALS 3 PLACE	FRACTIONS
	UNDER 6"	± .02	± .005	± 1/64
	6-24 INCL	± .03	± .010	± 1/32
COM. TOL APPLY TO STK SIZES	OVER 24	± .06	± .015	± 1/16
NEXT ASSY USED ON NO.	ANGLES ±			
APPLICATION				

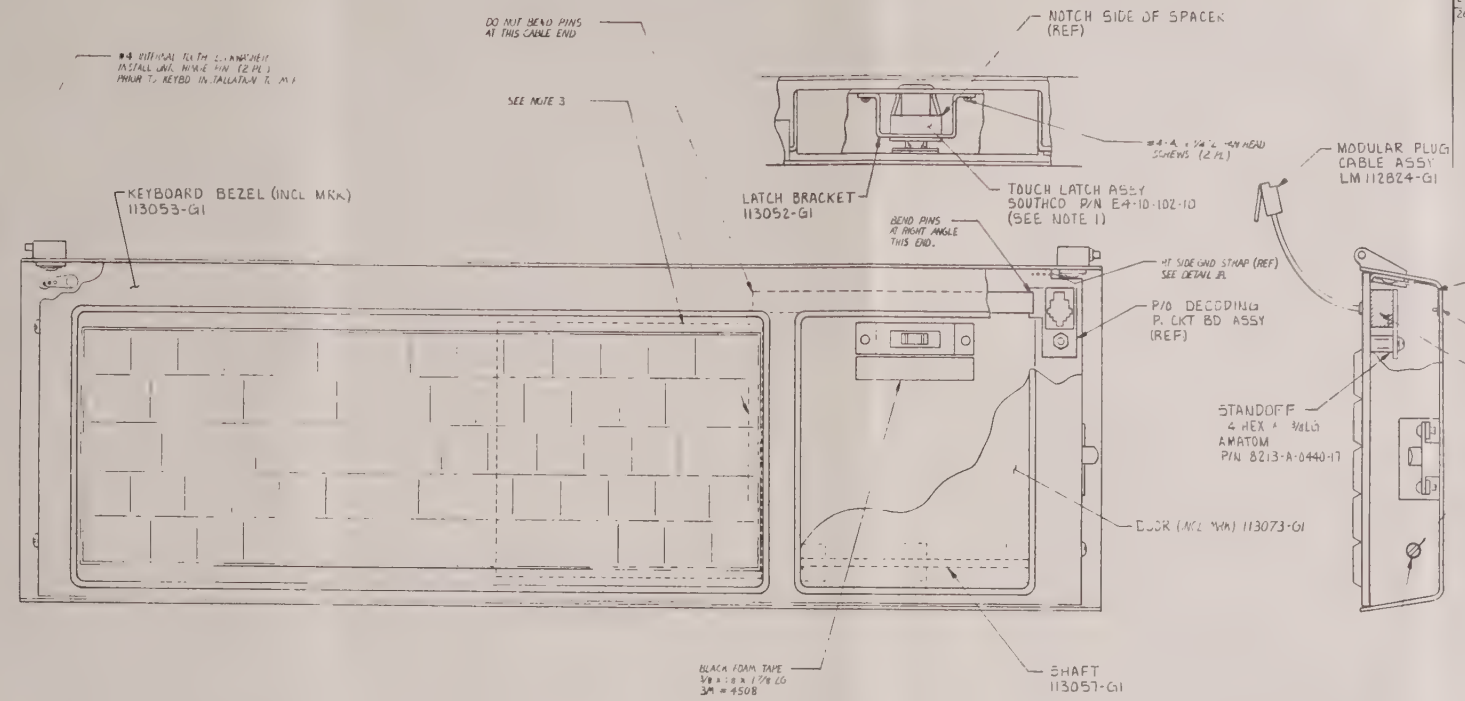
DRANETZ TECHNOLOGIES INC.
EDISON NEW JERSEY U.S.A.

SCHEMATIC
REAR MOTHER BOARD

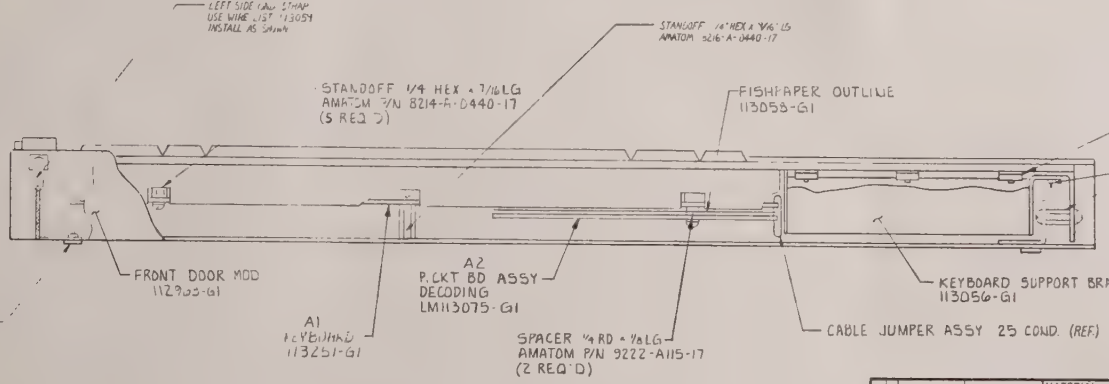
SIZE	CODE IDENT NO		REV
D	23207	112900-G1	A

SCALE ~ 1 | SHEET 1 OF 1

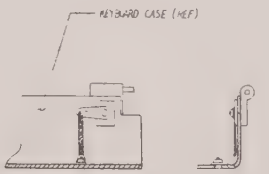
REVISIONS				
DRN	LTR	DESCRIPTION	DATE	APPROVED
2656	A	ORIGINAL ISSUE		


DO NOT BEND PINS AT THIS CABLE END
NOTCH SIDE OF SPACER (REF)
SEE NOTE 3
#4-A x 3/16" LG PAN HEAD SCREWS (2 REQ)
LATCH BRACKET 113052-G1
TOUCH LATCH ASSY SOUTHCO P/N E4-10-102-10 (SEE NOTE 1)
MODULAR PLUG CABLE ASSY LM112824-G1
KEYBOARD BEZEL (INCL MRK) 113053-G1
BEND PINS AT RIGHT ANGLE THIS END.
HT SIDE GND STRAP (REF) SEE DETAIL A
P/O DECODING P. CKT BD ASSY (REF)
KEYBOARD W/LUGS FLUSH W CASE SURFACE (TYP)
6-32 x 1/4" LG FLAT HEAD SCREW (2 REQ)
WRAP 1/2 W MYLAR TAPE CABLE AT END MODULAR PLUG
STANDOFF 4 HEX x 3/16 LG AMATOM P/N 8213-A-0440-17
#6 INT TOOTH LOCKWASHER (4 REQ)
DOOR (INCL MRK) 113073-G1
BLACK FOAM TAPE 1/8 x 1/8 x 1 7/8 LG 3M # 4508
SHAFT 113057-G1

NOTES
1. REMOVE ALIGNMENT GUIDE FROM KEEPER AND DISCARD AFTER ASSEMBLY.
2. APPLY LOC-TITE 290 TO THREADS.
3. CUT KEYBOARD SWITCH LEADS & 25 COND CABLE LEADS (WIRING SIDE) FLUSH TO BOARD. SWITCH LEADS ARE SHARP HANDLE CAREFULLY.
4. USE #4 INTERNAL TOOTH LOCKWASHERS AT 5 PLACES FOR KEYBOARD SUPPORT BRACKETS.


LEFT SIDE GND STRAP USE WIRE LIST 113059 INSTALL AS SHOWN
STANDOFF 1/4" HEX x 7/16" LG AMATOM 5216-A-0440-17
STANDOFF 1/4 HEX x 7/16 LG AMATOM P/N 8214-A-0440-17 (5 REQ'D)
FISHPAPER OUTLINE 113058-G1
FRONT DOOR MOD 112955-G1
A2 P.CKT BD ASSY DECODING LM113075-G1
A1 KEYBOARD 113251-G1
SPACER 1/4 RD x 1/8 LG AMATOM P/N 9222-A115-17 (2 REQ'D)
KEYBOARD SUPPORT BRACKET 113056-G1
CABLE JUMPER ASSY 25 COND. (REF)

SCREW, METRIC, BLK, — M4 x 6mm, PAN HD, SLTD SCHROFF P/N 60402-015 (6 REQ'D) (SEE NOTE 2)



DETAIL A (RT SIDE GND STRAP) SEP 15

PRELIMINARY

47

G							
G							
G							
G							
G1	112775-G1	050					
GROUP	NEXT ASSEMBLY	USED ON					
	APPLICATION						

MATERIAL

FINISH

UNLESS OTHERWISE SPECIFIED DIMENSIONS ARE IN INCHES AND INCLUDE CHEMICALLY APPLIED OR PLATED FINISHES

TOLERANCES

BASIC DIMENSION	DECIMALS 2 PLACE	DECIMALS 3 PLACE	FRACTIONS
UNDER 6	± .02	± .005	± 1/64
6-24 INCL	± .03	± .010	± 1/32
OVER 24	± .06	± .015	± 1/16
ANGLES ± 1/2°			

COML TOL APPLY TO STOCK SIZES

CONTRACT

APPROVALS SIGNATURE & DATE

DWN
CKD
ENG
P.E.
CKD
APPR
DEL
OTHER

DRANETZ TECHNOLOGIES INC.
EDISON NEW JERSEY U.S.A.

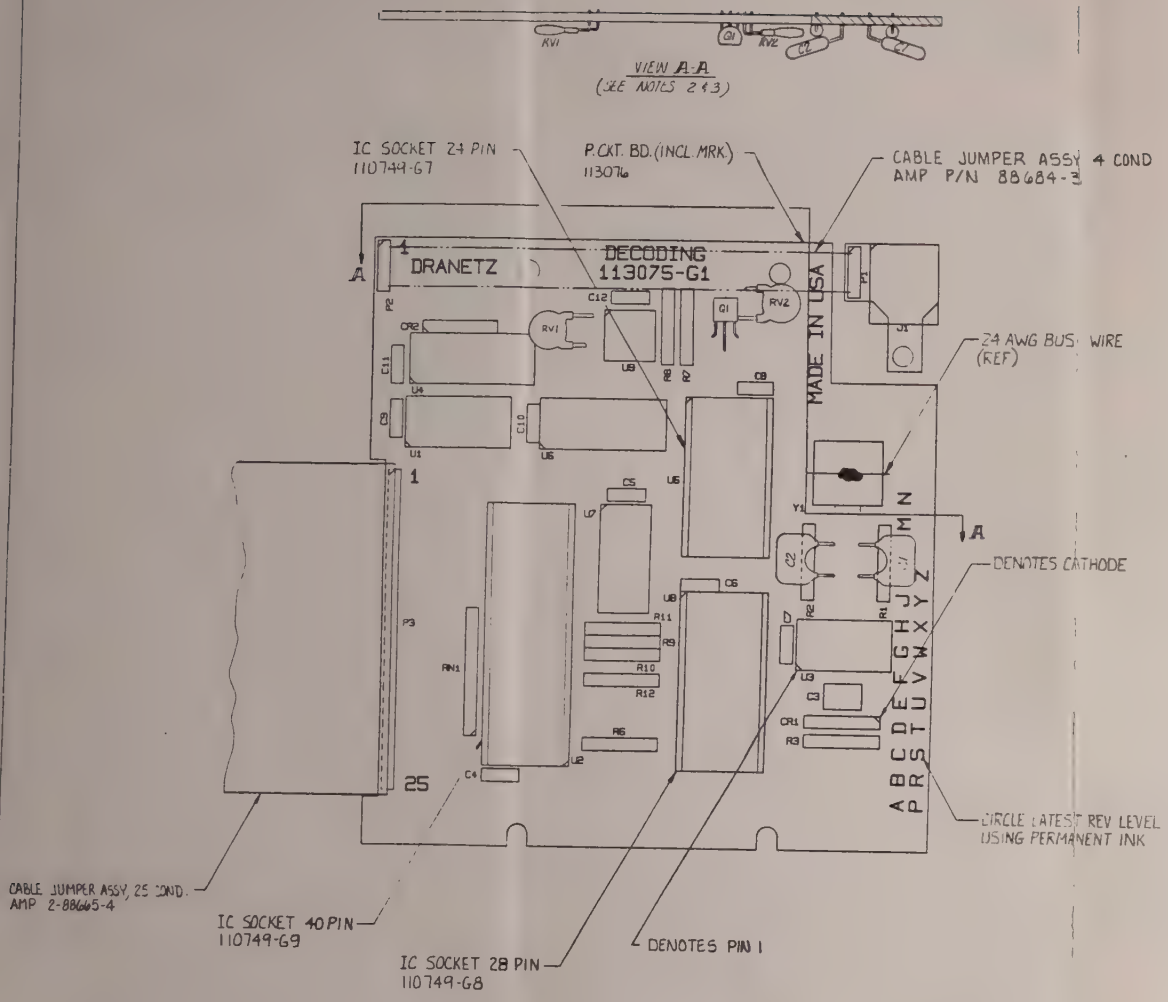
MAIN FRAME KEYBOARD

SIZE D | CODE IDENT NO 23207 | 113050-G1 | REV B

SCALE 1/1 | SHEET 1 OF 1

U OF M 1 PIECE 6 PAR CODE 5 SET 32 FEET | 52 U S FLUID / 55 U S GAL 54 U S LIQUID QT 68 LB AVDP 2

A ORIGINAL ISSUE		REVISIONS		
DRN	LTR	DESCRIPTION	DATE	APPROVED
2633	A	RELEASED TO PRODUCTION		
2657	B	ADDED VIEW A-A & NOTES 2 & 3. JS WAS 104254-G1		
2658	C	ADDED JUMPER CABLE ASSY (AMP 2-88665-4).		



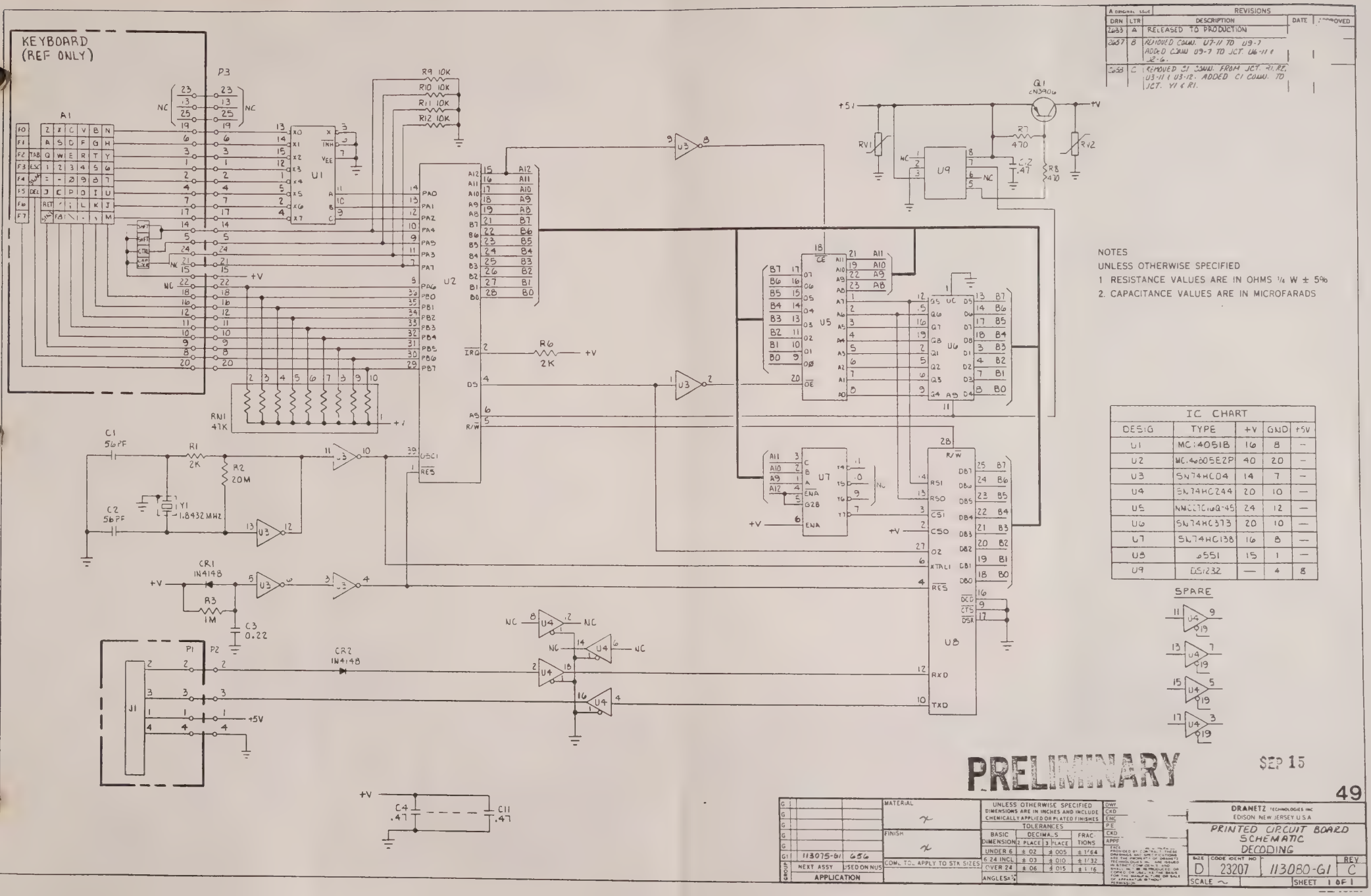
NOTES:

1. TRIM ALL TABS AFTER BREAKING AWAY SMALL BOARD.
2. AFTER SOLDER FLOW, BEND COMPONENTS RV1, RV2, C1, & C2 OVER AS SHOWN.
3. Q1 REQUIRES SPECIAL RT. ANGLE COMPONENT LEAD BEND PREP

PRELIMINARY SEP 15

48

G			MATERIAL	UNLESS OTHERWISE SPECIFIED DIMENSIONS ARE IN INCHES AND INCLUDE CHEMICALLY APPLIED OR PLATED FINISHES	DWN	DRANETZ TECHNOLOGIES INC EDISON, NEW JERSEY U.S.A.
G				TOLERANCES	CKD	
G			FINISH	BASIC DIMENSIONS / DECIMALS 2 PLACE / DECIMALS 3 PLACE / FRACTIONS	ENG	PRINTED CIRCUIT BOARD ASSEMBLY DECODING
G				UNDER 6 / ± 02 / ± 005 / ± 1/64	PE	
G1	113050-G1	656		6 TO 24 INCL / ± 03 / ± 010 / ± 1/32	CAD	
GROUP	NEXT ASSY	USED ON NUS	COML TOL APPLY TO STK SIZES	OVER 24 / ± 06 / ± 015 / ± 1/16	APPD	SIZE D / CODE IDENT NO 23207 / 113075-G1 / REV C
	APPLICATION			ANGLES ± ½°		SCALE 2/1 / SHEET 1 OF 1



REVISIONS				
DRN	LTR	DESCRIPTION	DATE	APPROVED
2633	A	RELEASED TO PRODUCTION		
2657	B	REMOVED CONN. U7-11 TO U9-7 ADDED CONN U9-7 TO JCT. U6-11 & J2-6.		
2658	C	REMOVED C1 CONN. FROM JCT. R1, R2, U3-11 & U3-12. ADDED C1 CONN. TO JCT. Y1 & R1.		

NOTES
UNLESS OTHERWISE SPECIFIED
1. RESISTANCE VALUES ARE IN OHMS 1/4 W ± 5%
2. CAPACITANCE VALUES ARE IN MICROFARADS

IC CHART

DESIG	TYPE	+V	GND	+5V
U1	MC14051B	16	8	—
U2	MC68B50E2P	40	20	—
U3	SN74HC04	14	7	—
U4	SN74HC244	20	10	—
U5	NMC27C16Q-45	24	12	—
U6	SN74HC373	20	10	—
U7	SN74HC138	16	8	—
U8	8551	15	1	—
U9	DS1232	—	4	8

PRELIMINARY

SEP 15

49

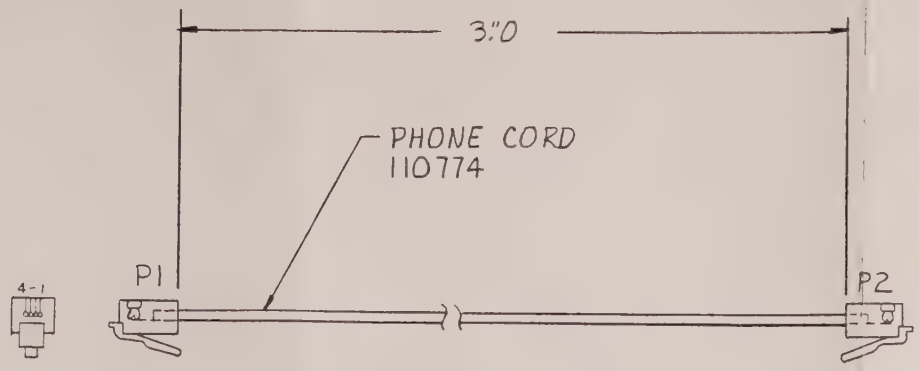
GROUP	113075-G1	656	MATERIAL	UNLESS OTHERWISE SPECIFIED DIMENSIONS ARE IN INCHES AND INCLUDE CHEMICALLY APPLIED OR PLATED FINISHES	DWN
	NEXT ASSY	USED ON NUS	FINISH	TOLERANCES	CKD
	APPLICATION		COML TOL APPLY TO STK SIZES	BASIC DIMENSION / DECIMALS 2 PLACE ± .02 / 3 PLACE ± .005 / FRACTIONS ± 1/64	ENG
				UNDER 6 ± .02 ± .005 ± 1/64	MFG
				6 24 INCL ± .03 ± .010 ± 1/32	CKD
				OVER 24 ± .06 ± .015 ± 1/16	APPD
				ANGLES ± 1°	

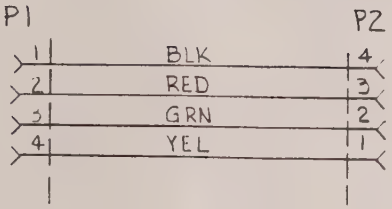
DRANETZ TECHNOLOGIES INC
EDISON NEW JERSEY U.S.A.

PRINTED CIRCUIT BOARD SCHEMATIC DECODING

SIZE	CODE IDENT NO		REV
D	23207	113080-G1	C
SCALE ~		SHEET 1 OF 1	

A ORIGINAL ISSUE	REVISIONS			
DRN.	LTR	DESCRIPTION	DATE	APPROVED
NDRN FD1	A	RELEASED TO PRODUCTION		





PRELIMINARY SEP 13

50

GROUP	NEXT ASSY	USED ON
G		
G		
G		
G		
G		
G1	112795-G1	656

APPLICATION

MATERIAL

FINISH

COML TOL APPLY TO STK SIZES

UNLESS OTHERWISE SPECIFIED DIMENSIONS ARE IN INCHES AND INCLUDE CHEMICALLY APPLIED OR PLATED FINISHES

TOLERANCES

BASIC DIMENSION	DECIMALS 2 PLACE	DECIMALS 3 PLACE	FRACTIONS
UNDER 6	± .02	± .005	± 1/64
6-24 INCL	± .03	± .010	± 1/32
OVER 24	± .06	± .015	± 1/16
ANGLES ± ½°			

DWN
CKD
ENG
PE
CKD
APPR

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DRANETZ TECHNOLOGIES INC.
EDISON, NEW JERSEY U.S.A.
115

MODULAR PLUG CABLE ASSY
(4 PIN DOUBLE ENDED)

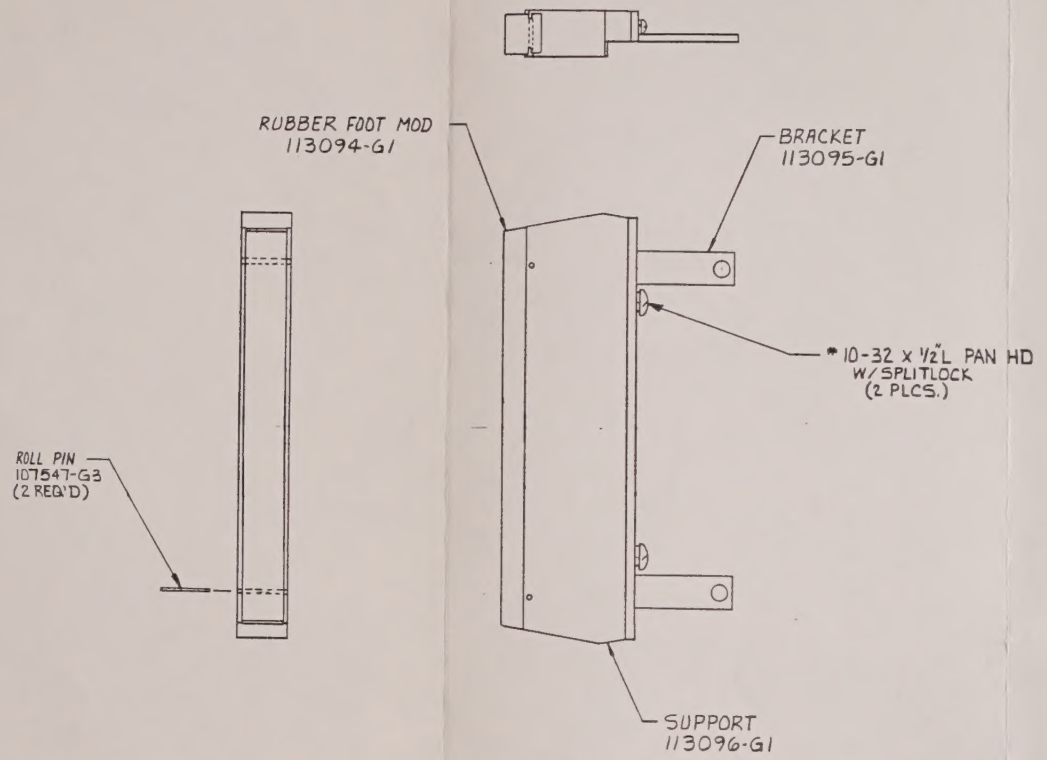
SIZE	CODE IDENT. NO.		REV.
B	23207	112824-G1	A

SCALE | SHEET 1 OF 1

OGILVIE PRESS 51712

U OF M CODE | 1 PIECE 5 SET | 6 PAIR 32 FEET | 52 U. S. FLUID OZ 54 U. S. LIQUID QT | 55 U. S. GAL. 68 LB., AVDP.

A ORIGINAL ISSUE	REVISIONS			
DRN.	LTR	DESCRIPTION	DATE	APPROVED
2633	A	RELEASED TO PRODUCTION		
2658	B	REMOVED MACHINE SCREW 107539-G9 (2 REQ'D) & NOTES. ADDED ROLL PIN & PAN HD SCREW CALLOUT. ADDED TOP VIEW OF FOOT ASSY.		



PRELIMINARY 5/15

51

G			MATERIAL
G			
G			
G			
G			FINISH
G1	112775-G1	656	
GROUP	NEXT ASSEMBLY	USED ON	
	APPLICATION		

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UNLESS OTHERWISE SPECIFIED DIMENSIONS ARE IN INCHES AND INCLUDE CHEMICALLY APPLIED OR PLATED FINISHES

TOLERANCES

BASIC DIMENSION	DECIMALS 2 PLACE	DECIMALS 3 PLACE	FRACTIONS
UNDER 6	± .02	± .005	± 1/64
6-24 INCL	± .03	± .010	± 1/32
OVER 24	± .06	± .015	± 1/16
ANGLES ± 1/2°			

COML TOL APPLY TO STOCK SIZES

CONTRACT

APPROVALS SIGNATURE & DATE

DWN	
CKD	
ENG	
P.E.	
CKD	
APPR	
DEL	
OTHER	

DRANETZ TECHNOLOGIES INC.
EDISON, NEW JERSEY U.S.A.

FOOT ASSEMBLY

SIZE	CODE IDENT NO.		REV.
C	23207	113093-G1	B
SCALE 1/1		SHEET 1 OF 1	

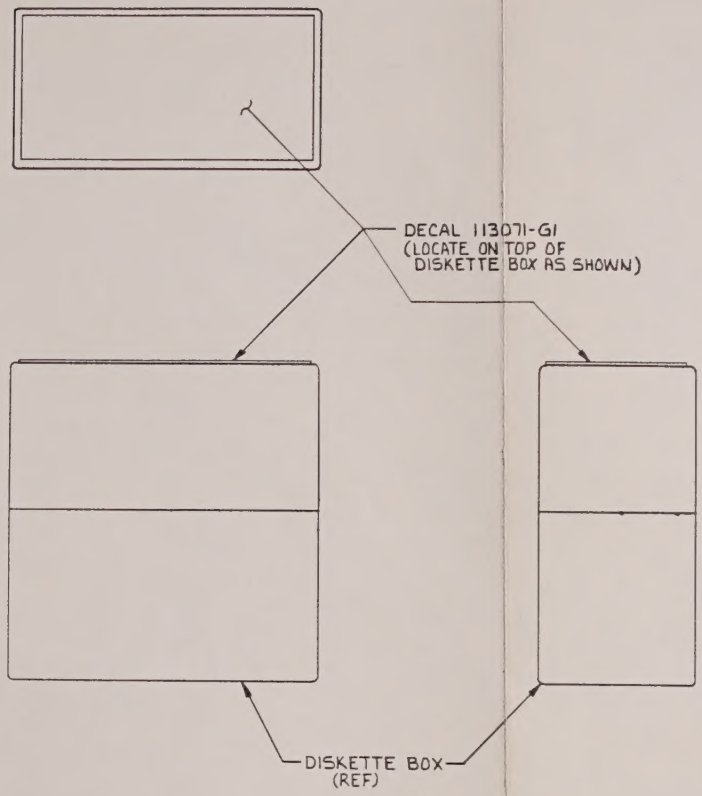
3 FOLD | U OF M CODE | 1 PIECE 6 PAIR 32 FEET 5 SET 20 REF DOC | FOLD | 52 U. S. FLUID OZ. 55 U.S. GAL. 54 U. S. LIQUID QT. 68 LB., AVDP 2

DRAWING NUMBER

DOLVE PRESS LANCASTER N.Y.

A ORIGINAL ISSUE	REVISIONS			
DRN.	LTR	DESCRIPTION	DATE	APPROVED
NDRN 114	A	RELEASED TO PRODUCTION		
2631	B	ADDED "DISKETTE BOX" CALLOUT & LOCATION OF DECAL 113071-G1 ON FRONT VIEW. REMOVED NEXT ASSY 112275-G1 & USED ON "656" FROM APPLICATION BOX.		
2658	C	ADDED LOCATION OF DECAL ON SIDE VIEW REMOVED MANF. NAME "SONY."		

MICRO 2-87



SEP 15

PRELIMINARY

52

G			MATERIAL
G			
G			
G			
G			FINISH
G1			
GROUP	NEXT ASSEMBLY	USED ON	
	APPLICATION		

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TOLERANCES

BASIC DIMENSION	DECIMALS 2 PLACE	DECIMALS 3 PLACE	FRACTIONS
UNDER 6	± .02	± .005	± 1/64
6-24 INCL	± .03	± .010	± 1/32
OVER 24	± .06	± .015	± 1/16
ANGLES ± 1/2°			

COML TOL APPLY TO STOCK SIZES

CONTRACT

APPROVALS SIGNATURE & DATE

DWN	
CKD	
ENG	
P.E.	
CKD	
APPR	
DEL	

DEL SOURCE

OTHER

DRANETZ TECHNOLOGIES INC.
EDISON, NEW JERSEY U.S.A. 115

DISK PACK ASSY

SIZE	CODE IDENT NO.		REV.
C	23207	113070-G1	C

SCALE 1/1 SHEET 1 OF 1

3 U OF M CODE 1 5 6 PAIR 3 FEET 20 REF DOC 52 U.S. FLUID OZ. 55 U.S. GAL. 54 U.S. LIQUID QT. 2

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